



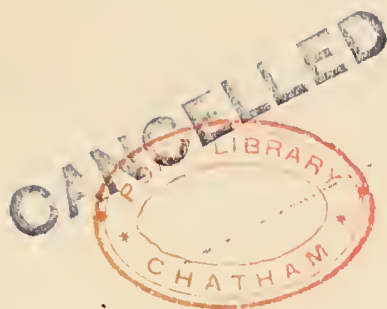
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BOTELER'S DIALOGUES

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Butler, Nathaniel, fl. 1640.

Boteler's Dialogues

EDITED BY

W. G. PERRIN



PRINTED FOR THE NAVY RECORDS SOCIETY

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INTRODUCTION

NATHANIEL BUTLER¹ was apparently the elder son of the second marriage of John Butler of the Toft, Sharnbrook, a village that lies nine miles N.W. of Bedford. The only direct evidence for this is a document quoted, but not particularised, in Brown's *Genesis of the United States*, which names him as 'the eldest son of John Butler of Tofte in Sharnbooke in County Bedford Esquier, per the 2 venter, Mary dau. of James Gedge and wydow to Christopher Harris Esq.' Unfortunately the genealogical tables in the Harleian and Rawlinson collections agree in giving the name of that son as Samuel, but I believe these have all been copied from one original, and that it contained a mistake. The younger son of John Butler and Mary Harris (Gedge) was named James, and from the records of the Virginia Company it is evident that Nathaniel had a brother of that name. Moreover, it is not probable that William Butler of Teston, the grandson of John Butler, would (as related below) have stood surety for Nathaniel in 1640 in a bond for a large sum unless he were a near relative; and the will of Sir John Butler of Sharnbrook, the eldest son of Sir Oliver Butler, dated 1634, contains a legacy to his 'uncle Nathaniel Butler.' These facts corroborate the statement quoted by Brown, and I can find none inconsistent with it: for these reasons I think it should be accepted.

¹ This is the proper spelling; the reason for the spelling which appears on the title page is given on p. xxii.

The Toft was a small manor that passed, with other land in the neighbourhood, through a grant by letters patent dated the 15th March, 1540, to George Butler, the father of John. From the terms of this grant it appears that the land was already leased to him. John Butler, who succeeded to this estate in 1550, at the age of twelve, died in 1614, and was succeeded by his eldest son Oliver,¹ who had been knighted by James I at Ware, during one of his progresses, in August 1604.

The date of Nathaniel's birth is not positively known, though it must be presumed to have been 1577, for he speaks² of his voyage to the West Indies as taking place 'in the sixty one year of my life'; nor is there any record of his life before the year 1619, when he suddenly comes into view as a prominent member of the Virginia Company, who at the quarterly Court of the Company held on 9th June, 1619 was appointed a member of the Council for Virginia. From the terms of the minute making that appointment (in which he appears in company with the Earl of Warwick, Sir Thomas Cheeke, Sir Nathaniel Rich and John Ferrar), it is clear that he had long taken a prominent part in the management of the Virginia Company's affairs. In 1619 the governorship of the Somers Islands was about to fall vacant, and as Butler himself tells us in his *Historye of the Bermudaes or Summer Islands*,³

¹ His mother was Cressid, daughter of Sir John St. John of Bletso. He married the heiress of Thomas Barham of Barham Court, Teston. In 1772 the male line became extinct and this estate passed in 1798 to Admiral Sir Charles Middleton, who took his title from it in 1805.

² *Infra*, p. 176.

³ Published by the Hakluyt Society in 1882.

'the competition especially rested between one Captain Southwell, who mediated by the letters of great courtiers and favourites, Mr. George Sands, who stood very fair and likely by the strength of his brother Sir Edwin . . . and one Mr. Nathaniel Butler, favoured by divers of the Lords of the Company, and in especial long known to the Earl of Warwick and by him well affected.' The canvas seems to have been very warm, but in the end Butler won by 297 votes to 3. The date of this election is not given, but it probably took place at a Court of the Somers Islands Company held on 28th April, 1619. Butler left England at the end of August in the *Warwick*, a ship belonging to the Earl of Warwick, and arrived at Bermuda on 20th October.

In the work referred to above he gives an account of his actions from that date until September, 1622; the book is easily accessible and there is therefore no need to recapitulate them here. The rivalries which rent the Virginia Company in twain between the adherents of the Earl of Southampton and of the Earl of Warwick extended to the Somers Islands Company, which had budded from the older Company in 1612 and received a separate charter in 1615. In such circumstances no Governor could please more than a moiety of the Company and Butler's deeds were much criticised.

At the end of August 1621 a Spanish ship had been wrecked upon the outer reefs about ten miles from the land. The crew and passengers, seventy in number and many of them sick, managed to escape to the land and were there succoured and relieved by Butler, who sent them to England in November in a ship then going home, taking

a bond of £80 to cover the cost of their transport. Under this bond the Captain and another officer were arrested in England, and sought the intervention of the Spanish Ambassador in May 1622. The matter came before the Privy Council, who stayed the proceedings for a time and then—probably because they had heard Butler's side of the story—decided that the case should be tried in any Court of Justice that the complainant might select. A further subject of Spanish complaint was the goods salvaged from the wreck. At first the Somers Islands Company supported Butler's actions, but finally decided to appoint the new Governor elect (Captain Barnard) and some of the men going out with him, as Commissioners to examine on their behalf, upon the spot, Butler and all others concerned. It has been implied by several writers that there was something irregular in Butler's behaviour in the matter, and it has been stated that the intervention of the Ambassador led to his recall, but this does not appear to be the fact. He had been appointed for three years only and he left the Islands on 25th October, 1622, when his term as Governor had expired, taking the opportunity of a ship going to Virginia in order to visit that Colony on his way back to England. The commission referred to above was only issued on 5th September, and it is most improbable that Butler could have known of its existence when he left the islands. The statement of the Company in February 1623 that he 'secretly fled eight days before the arrival of the new Governor and the Commissioners' appears to be mere spitefulness of the opposition then in the ascendant, and the view expressed by Captain John Smith in his *General Historie of Virginia, New*

England and the Summer Isles (Book V. 199) seems a fairer explanation of the facts :

By this time it being grown past the wonted season of the coming in of ships from England, after a general longing and expectation, especially of the Governor, whose commission being near upon expiration gave him cause to wish for a mean of deliverance from so troublesome and thankless an employment as he had hitherto found it ; a sail is discovered, and long it was not before she arrived in the King's Castle Harbour. This bark was set out by two or three private men of the Company, and having landed her supplies, was to go for Virginia. By her the Governor received certain advertisements of the carriage and behaviour of the Spaniards, which he had relieved as you have heard the year before ; that quite contrary both to his merit, their vow, and his own expectation, they made clamours against him, the which being seconded by the Spanish Ambassador caused the State to fall in examination about it ; whereupon having fully cleared their ingratefulness and impudency, and being assured of the choice of a successor that was to be expected within five or six weeks, he was desirous to take the opportunity of this bark, and to visit the Colony in Virginia in his return for England, leaving the government to Captain Felgat, Captain Stokes, Master Lewis Hewes, Master Nedom and Master Ginner, but now his time being fully expired, and the fortifications finished. . . .

. . . yet for so departing and other occasions, much difference had been between him and some of the Company, as any of his predecessors, which I rather wish were reconciled, than to be a reporter of such unprofitable dissensions.

Shortly after he arrived in Virginia, Butler, in conjunction with Captain William Powell, led an expedition of 80 men against the natives on the Chickahominy River. About the middle of January 1623 he left for England and there presented to James I—probably at the suggestion of the

Earl of Warwick—a scathing criticism of the management of that colony, which he called ‘The unmasked face of our colony in Virginia as it was in the winter of the year 1622.’¹ The controversies between the factions in the Company, which had always been acute, now became so violent that the King intervened and forced the Company to surrender its charter, so that the colony became a Crown Colony. By Letters Patent dated 15th July, 1624, the management of this colony was placed in the hands of commissioners under the Lord President of the Privy Council. The Commissioners were 56 in number and Butler was one of them.

It was about this time that he put forward a memorandum on the use of the Bermudas as a base for attack on the Spanish West Indian Fleets (*Tanner MS.* 73). Subsequently he suggested to Charles I that he should take the government of those Islands “into his own hands, as his Royal Father did that of Virginia, and send and employ Commanders and Officers of his own choice.” In the latter memorandum (*Egerton MS.* 2543, fol. 125) which is holograph, signed but not dated, Butler refers to petitions of the inhabitants “intimating as well their fears as oppressions, the which (as missing means and fit season) I have hitherto forborne to exhibit, but shall not fail to perform it whensoever it shall be commanded.” From the fact that this paper is endorsed in the hand of Nicholas, I should be inclined to date it after his appointment as a Clerk of the Privy Council in 1635.

The year 1625 saw the fitting out, failure, and return of the expedition to Cadiz under Sir Edward

¹ A copy, and the Company’s answer to it, will be found in Kingsbury’s *Records of the Virginia Company*.

Cecil. Butler, apparently at Charles I's desire, was given the command of one of the hired merchantmen of the Admiral's squadron, the *Jonathan* of 371 tons, 69 seamen and 197 landmen ; and while the fleet was at Cadiz he was selected by Cecil to take charge of the boats appointed to re-embark the soldiers from Puntal, with 'a special warrant under his Lordship's¹ hand to procure the better obedience to his commands.' His experience on the return home was no less unfortunate than that of the others. Contrary winds and bad weather drove him to the west coast of Ireland and he put into Killybegs Harbour on the coast of Donegal at Christmas, with his ship's company so weak from sickness (he had thrown 80 dead overboard on the passage) that they could not handle their sails, so that he could not leave again until more seamen had been impressed for him. One of the commanders of the soldiers was dead and the other sick, and the remaining soldiers had to be put on shore until the ship had been cleaned and made healthy. Writing to the Lord Deputy for further instructions, Butler ends 'I will only say in brief that since '88 there was never the like expedition frustrated, and so frustrated.'

He served again in 1627 in the expedition to the *Ile de Ré*, in command of the *Patient Adventure*, a merchantman auxiliary of 360 tons, 48 guns and 160 men in the Earl of Denbigh's squadron ; and in 1628, in command of one of the King's ships, the *Nonsuch* of 600 tons, 40 guns, and 340 men, in the expedition for the relief of *Rochelle*.

After 1628 he had no further service in the

¹ Cecil was made a Baron on return to England and Viscount Wimbledon in 1626.

Royal Navy and he does not seem to have held any public office until 1638, but in 1634 when the first of the 'Ship Money' fleets was in contemplation the Lord Treasurer (Richard Weston, Earl of Portland), the head of the Commission¹ that had been executing the office of Lord High Admiral since the murder of Buckingham, suggested to Butler that he should apply for one of the commands that would be vacant when the fleet was commissioned. Weston, however, died on 13th March, 1635, and Butler, as soon as he heard of this wrote to Edward Nicholas, the Secretary to the Commissioners, as follows :—

NOBLE SIR,

The last time that I waited upon the Lord Treasurer, which was by his own command, he wished and invited me to offer myself unto His Majesty's service in this shipping that is now in preparation, the which I then humbly desired that his Lordship would vouchsafe to do for me, and this he then very readily promised, telling me that he had already set me down in the list of Captains to command in one of the King's ships, answerable to that command which I last had at Rochelle. It is now reported with us at Coventry that his Lordship is certainly dead, and because of this unhappy accident I have lost that means to present my humble service which I had by my Lord, and that I cannot but conceive that His Majesty will rather employ such of his Captains as have faithfully served him in all his former employments of this nature than any new ones not so well known unto him ; and that I would not be thought by any means to hide myself from His Majesty's services, my earnest desire to yourself is that you will be pleased to make known to the Honourable Commissioners that I am most willing and ready to live and die in these services of His Majesty, and in particular in this now in action. And this I conceive to be consonant as well to my duty as proper to the place you

¹ Really a Committee of the Privy Council.

hold, and what favour and right I shall find by your motion and solicitation and furtherance herein shall be thankfully and readily acknowledged by

Your true friend and servant.

NATH. BUTLER.

Coventry, March 17th, 1635.

This Bearer will attend your answer and convey your advice at all times.

Yours to command,

NA. BUTLER.

To my noble friend Mr. Nicholas, Secretary for His Majesty's Navy Royal.¹

The 'List of gentlemen now living who have had command of Fleets and Ships in his Majesty's service' drawn up by Nicholas and endorsed by him as presented to the Lord Treasurer in June 1634 shews that Butler was then under consideration. A later list drawn up by Nicholas in March 1635, just after Portland's death, distinguishes between the captains who had commanded one of H.M.'s own ships and those that had commanded merchant ships in H.M. service. Despite his command of the *Nonsuch* in 1628, Butler was placed in the latter category. Perhaps for this reason, and because his friend the Lord Treasurer was dead, he was not given any appointment in those fleets.

His next public appointment was under the Providence Island Company whose principal possession (as the name denotes) was the Island of (Old) Providence, or Santa Catalina Island, which lies off the Mosquito Coast of Nicaragua.

This Company had been founded by the Earl of Warwick and other adventurers, mostly members of the Virginia and Somers Island Company,

¹ S.P. 16, 535-55.

in 1630. At first the island was a colonial settlement like the Bermudas, and was indeed largely settled from them, but since the year 1635 it had tended more and more to become merely a privateering base. In 1637 the affairs of the Company had been through a crisis and the Company was reconstructed. The need was felt for a more experienced governor and at the meeting of a Court of the Company in March 1638 it was decided to offer Butler the governorship of this island. On 17th April articles of Agreement between the Company and Butler were signed. He was to be appointed Governor and Admiral; to be allowed £66 13s. 4*d.* per annum, with 12 servants and use of the Company's cattle. The main financial basis of the agreement was in the next proviso which granted him one hundredth part of all prizes taken, after first deducting one-fifth of their value as the Company's share; finally, he was to be brought home at the Company's charge whenever he desired to return, and was granted £30 towards his expenses in fitting out. His commissions as Governor, and as Admiral, and his instructions were all dated 23rd April. He was empowered to take Spanish prizes and was to erect a strong prison for the Spanish prisoners, but no hostilities were to be attempted till the safety of the island was assured. Among other instructions was one exhorting him to shew respect to the captains of the Company's men-of-war. At the same time a long letter was written to the existing Governor and Council, which among other things recommended Butler to their 'acceptance and respect as a man of very good parts and experience, being an ancient soldier at sea and land and heretofore employed in good places of trust and command

and a man of very good esteem here, the defence of the island requiring at this time a man of ability in regard of the danger from the Spaniards.' Butler, Captain Hunt (the retiring Governor) and two captains of the Company's privateers were subsequently appointed a Council of War to settle all military affairs connected with the island.

Butler left England at the end of April 1638 in the hired ship *Expedition* with 150 passengers and 100 tons of goods sent out for the island. The articles agreed with the owner and the master of the ship, required the latter to deliver at the island 'so many persons as shall be living' at the end of the voyage. Most of the passengers were going out as 'servants'—a euphemism for white slaves. Butler was in military command, but he was not to interfere with the master's navigation except in action. It is not known when he arrived, but the voyage was unduly long and the Company began to get nervous at hearing nothing and wrote to say they would 'be glad to receive certain advice' of his arrival. They do not appear to have got this until June 1639, for they commenced a long letter of 7th June with the following paragraph :

We are very glad to hear of your safe arrival and thank God that brought you through the difficulties and dangers of the Journey which we perceive were somewhat more than ordinary by reason of the loss of your Master and inexperience of the seamen that had the charge of the ship.

Providence Island is very small ; and with the rough navigational methods of those days it was very difficult to find, as is clear from Butler's *Journal*. This 'Diary from 10th February, 1639 of my personal employments' really begins on 9th February, and shews that he was then already

at work as Governor and Admiral ; the latter, it may be remarked, being more a judicial than a military office. An entry in 4th March gives an example of his duties as Admiral :

4 Mch. I called a Court of Admiralty this morning and empaneled twelve seamen to deliver their verdict concerning a misdemeanour committed by a master of a ship . . . but these jurors proved themselves so absurd and ignorant as soon made me find the misery of trials in these days by such kind of men ; and it now produced an order in a session of the Council of War in the afternoon, whereby all future crimes and commissions of this nature were made punishable another way.

At the end of May, having settled the civil affairs, he turned to the privateering side of his duties, and on the 30th set out in the *Warwick*, belonging to the Earl of Warwick, in company with the *Spy*, one of the Company's pinnaces, 'a frigate of our own named the *Gift of God*' and 'a small frigate of ours also named the *Hope-well*.' On 6th June they attacked and took *Truxillo* in Honduras and exacted a ransom of 16,000 pieces of eight. For three months more they cruised in West Indian waters, apparently with the most inefficient of navigators, over whom Butler as Governor seems to have had no control, until on 12th September, after several bad shots, they managed to find Providence Island again. Butler was then again immersed in local affairs, which seem to have been made up mostly of religious and secular quarrels. On 18th January, 1640 'some of the prime masters of the families . . . delivered a petition . . . wherein they moved me to take the pains for them . . . to make a voyage into England and to solicit a redress.' Butler took his time to think over a reply and finally decided to go home. He left

in the *Swallow* on 24th February by way of Cape Gracias à Dios and the Bahama Channel. On 2nd May after a stormy voyage, during which they captured one small prize, they sighted Land's End; but the next day they narrowly escaped the fate they had inflicted on others, for near the Eddystone a large ship, apparently a Dunkirk privateer, made for them. Fortunately—rejecting the advice of the more cowardly members of the crew to surrender—they got the *Swallow* close inshore. The larger ship could not, or feared to, get near enough to use her guns with effect and her boats feared to attack, so that on the 4th May the *Swallow* escaped into Cattwater and Butler got safely ashore; to meet further troubles.

The Company instructed the local Admiralty agent to examine into the price at which the inhabitants of Truxillo had compounded for their homes, and there were the usual complaints against the departing Governor, and allegations that he had no right to goods that he brought home. On 19th and 20th June Butler attended a Court of the Providence Island Company in London and gave his opinion on the state of the island, and agreed to answer the various charges. Apparently the Court was satisfied, for it paid the balance of stipend due on the 23rd, after Butler had entered into a bond to repay the value of any goods proved not to belong to him. The surety for this bond was his nephew, William Butler¹ of Teston.

¹ Thus the name is spelled in the Court record, but he had adopted the mediæval spelling of this name, 'Boteler,' which was thereafter used by this branch of the family. He was made a baronet in 1641 and killed at Copredy Bridge in 1644, when serving as Captain of a regiment he had raised in the Royalist Army.

After June 1640 all trace of Butler is lost¹ and the date of his death is unknown, but it is clear that he revised and rewrote his *Dialogues* after his return home. Apparently he was engaged in finishing his *History of the Bermudaes* when he died. He had commenced this work when Governor, for the Rev. Lewis Hughes, who was in the colony with him, says in his *Plaine and true relation* . . . published in 1621: 'ere it be long thou shalt have a larger relation thereof written by Captain Nathaniel Butler now Governor of the said islands.' The manuscript (*Sloane* 750), which is entirely in Butler's handwriting, ends abruptly in the middle of a sentence while describing events in 1622, the last year of his governorship. A strange hand has added the following paragraph:—

And here it was the will of God to take out of this world the writer of this History, he intending a farther progress in it, but as I have heard from the last mentioned Governor's mouth the Company of Adventurers in England, according to their wonted cavilling manner with the proceeding Governors, played fast and loose with him as with the rest, and though he stayed his full time at the Somer Islands and took much care and pains not only in ordering the strengthening of the chief forts, planting of necessities and doing what possibly could be done in the infancy of this plantation, but also in establishing honest and convenient laws for the good of the place, yet he returned with very little profit or thanks more from that ungrateful Company than those which were before him.

Unfortunately this is neither signed nor dated. The writer, respecting Butler's anonymity in this work, refers to him as the 'last-mentioned Gov-

¹ The entry in *Cal. S. P. Colonial*, 9 March, 1641, is a mistake of the editor who misread *und'* as *and*.

ernor,' but not as the author, which led the Hakluyt Society editor, who evidently did not know Butler's handwriting, to suppose it must have been written by another and suggest John Smith.

When Butler comes first into view in 1619 he has already acquired the title of 'captain.' He had probably done this in land service in the Low Countries, but he may also have seen sea service as a privateer captain. His history of his governorship in Bermuda shews a man familiar with military training, but only in one instance does he give any hint of his previous life. In his address to the Grand Jury in June 1620 he says 'my breeding hath been rather in action than words.' This no doubt was so, but he displays an acquaintance with the Latin, French, Italian and Spanish languages, and with English judicial procedure, that could not have been acquired solely in action.

One would expect so important a man not to escape notice in the troubles of 1642 and the following years. If he adhered to the Royalist side, as his nephew did, he would probably have had some dealings with the Committee for Compounding; if, on the other hand, he followed his old master the Earl of Warwick, his name might be expected to appear somewhere among the Parliamentary supporters; but although his remarks¹ upon the division of pillage imply that he was still alive in 1643, he would then have been 66 years of age; too old to take part in active affairs.

There are five existing states of the text of these Dialogues :—

¹ *Infra*, p. 40.

A. The book printed in 1685 and re-issued with new title page in 1688.

The manuscript from which the book was printed was no doubt destroyed in that process, but it was practically identical with **B**, and it is probable that, like that MS., it had no title page, for the title pages of both editions of the book are evidently the work of the publishers. They, following the example of the head of the family at Teston, reverted to the older form of the surname, and under this form—never used by Nathaniel Butler himself—the ‘Six Dialogues’ have become so familiarly known to students of naval history that it seemed desirable to retain that spelling upon the title page of the present edition.

The publisher of the first edition, Moses Pitt, was a well-known bookseller of the period, famous for his ‘English Atlas.’ He was also a speculative builder and built a house in Duke Street, Westminster, which he let to Judge Jeffreys, and which was in the occupation of the Admiralty from 1689 to 1695. The atlas and the building speculations were alike a failure, and it must be presumed that the ‘Six Dialogues’ was not a commercial success, for although the book was reissued in 1688, copies are extremely rare, only one of the second edition being known to me and but half-a-dozen of the first. The British Museum, the Pepysian Library, and the Admiralty Library are each in possession of a copy of the first edition; the Scott Library is the fortunate possessor of both editions.

The title of the 1685 edition is ‘Six Dialogues about Sea Services. Between an High Admiral and a Captain at Sea, concerning [here follows six brief headings]. By Nathaniel Boteler Esq.,

Lately a Commander and a Captain in one of His Majesties Royal Ships of War. Printed for Moses Pitt at the Angel in St. Paul's Churchyard 1685.' The text is prefaced by the following dedication :—

To the Honourable Samuel Pepys, Esq., Secretary to the Admiralty.

SIR,

Meeting with this book in manuscript, and liking well the contents thereof, I desired some of my friends to give me their opinions of it ; which they freely did, and told me that they thought it would be a useful Treatise, not only for seamen, but also for all those that are curious to be informed in the Menage of Shipping, whereupon I was encouraged to undertake the printing of it. But the Author neither having recommended his book by any Dedication, nor Preface, I thought myself obliged to beg the protection of some person eminently skilful in these matters, to make it the more acceptable to the Ingenious ; and knowing your great experience in the subject treated of, and how great a Patron and Encourager you are of the improvement of Navigation, I presume to lay it at your feet ; and if you shall please to accept it favourably, and afford it a good character ; I hope the benefit will be to the reader, as well as to the bookseller, who is,

Sir,

Your most Humble Servant,

MOSES PITT.

May 19, 1685.

The text of the 1688 edition was printed from the same type as the former, but the dedication was omitted and the title page was entirely new : 'Colloquia Maritima or Sea Dialogues, treating [here follows a brief summary of each dialogue different in form from that of 1685]. Useful for all that desire knowledge in Sea-Affairs. By N. Boteler Esq., formerly a Commander in one of his Majesties Royal Ships. London. Printed and

sold by William Fisher and Richard Mount at the Postern on Tower-hill, 1688.'

B. The manuscript (Rawlinson A 463) in the Bodleian Library.

The text is in a copyist's handwriting and, as already remarked, is practically identical with **A**, but it contains a few small corrections and additions in Butler's hand. It has no title page.

C. Sloane MS. No. 758 in the British Museum.

The first part of this, including the title page, reproduced at p. xxx, is in a copyist's hand; the latter part, from p. 200 on, is in Butler's hand, but he did not finish copying the Sixth Dialogue. Butler took this MS. with him to Providence in 1638; and the blank pages in the front, together with the back of the title page, are covered with notes of his official letters. The end of the volume (on the same paper) contains the Journal of his proceedings from 9th February 1639 to 3rd May 1640, occupying 61 closely written pages. This title page is the only contemporary one to give his name in full, 'Nathaniell Butler,' and a date, '1634.' The MS. contains numerous corrections and additions in Butler's hand from which it is evident that he employed his leisure hours after 1634 in revising his work.

D. Harleian MS. No. 1341 in the British Museum.

This is a copy embodying the corrections and alterations of **C** and further revised by Butler, who has made copious notes upon it, some of which he did not embody in his final revision. For instance, against his first paragraph he has

noted : ' See of the etymology of the title Admiral in my great written book under the title Speech, which upon occasion may here be well inserted ' ; and he made an interlineation after Lord High Admiral : ' who according to the Arabian etymology of the word may be a supervisor of sea affairs.' He omitted this in his final text. The title page of this MS. is in Butler's hand, but is not dated, and only his initials are given.

E. Sloane MS. No. 2449.

This is a clean copy entirely in Butler's handwriting, and is the final state of the text. It may have been copied from **D** with such alterations as occurred to the writer as he progressed. The present edition is from this text, but a few additions have been made from the earlier texts, either because these seemed to be of interest ; or to elucidate this text ; or, in some cases, to fill lacunæ due to slips in copying. These additions are indicated by square brackets. In accordance with the rule of this Society the spelling has been modernised.

A comparison of this latest text, which seems to have been made about 1643, with the earliest (which the title page of **C** indicates as having been made in 1634) shews a great improvement in literary style. The language is less archaic and many pettifogging interruptions by the Admiral have been omitted. At the same time Butler, who seems to have taken delight in paraphrasing his words, has in some instances altered his original wording for the worse. The title page of this MS. is a later addition ; it adopts the spelling ' Boteler.'

When the Dialogues were first drafted, the office of Lord High Admiral had been in commission since 1628, and the Lord High Admiral was not 'restored unto us' until 13th April 1638. Butler's reference to this restoration in his second paragraph must therefore have been anticipatory. The work could not have been compiled for the information of any particular Lord High Admiral; it may have been done merely for the author's amusement, but it is possible that it was partly for his friend Lord Treasurer Weston, who in 1634 was head of the Board of Admiralty.

The first three and the last two Dialogues seem to be original matter and are of the greatest interest and value, for they throw a light upon the early Stuart Navy that could not be supplied from any other source.

The Fourth Dialogue was, in its original form, nothing but a crib from Mainwaring's *Seaman's Dictionary*. That Butler does not openly acknowledge this would not be considered peculiar in that age; he admits that he is using 'the best helps of my memory.' Butler says that the task better suited a ship carpenter than a sea captain and that a 'very ship boy can do it as well as either of them both,' but in process of copying from Mainwaring he has paraphrased his copy (either because he thought it necessary to change some of the words to make the work his own, or from mere love of inversion), and thereby—to use a modern colloquialism—has given himself away; for it is abundantly clear after a study of original and copy that Butler was no seaman, but one of the 'gentlemen captains,' and hardly knew stem from stern; though, as the other Dialogues shew, he was evidently a good staff officer. No other explanation can be found for

the grotesque blunders introduced into passages which were perfectly lucid in Mainwaring's original text, even if some of these blunders have originated, not from clumsy paraphrase, but from inability to read correctly the MS. of *The Seaman's Dictionary* from which he was copying. Thus the nonsense on p. 93 'it will cause her head to be still running into the wind, the stemings being generally long; so that all lofty ships are to stay their masts afterwards on' was no doubt due to a misreading of 'if her masts be stayed too much afterwards on, it will cause her head still to run into the wind. The Flemings being generally long floaty ships, do stay all their masts aftward on.'¹ No competent seaman could have coined the nonsense word 'stemings' and mistaken 'floaty' for 'lofty.' There is no need to elaborate this argument, but it is now easy to see why Butler's ship was so long getting to Providence Island in 1638; evidently he had not enough technical skill to compensate for 'the loss of your Master and inexperience of the seamen that had charge of the ship.'

Thus the bulk of the Fourth Dialogue is of little independent value, but in the final text he added a good deal of original matter. Among this, some is interesting and useful, as for example, his remarks about the frigate, latitude and longitude, the shipworm, or the winds in the West Indies, or his explanations of the words 'magg' and 'muzzled'; but his disquisitions on the origin of the tide, the saltness of the sea, and the cause of winds, serve merely to exemplify the scientific ignorance of his age and to shew how he spent, or mis-spent, his time after his return to England in 1640.

¹ *Vide* Vol. LVI, p. 157.

The Fifth and Sixth Dialogues are perhaps the most valuable in the book. They have undergone a thorough revision, and in the form in which they now appear are a great improvement upon that in which they were first written.

Among the principal items of interest in the Fifth Dialogue are the remarks on the size and handling of men-of-war and the desirability of wintering them in other ports than Chatham. His dislike of body armour at sea may be noted ; it appears first in **D**, where he remarks that this opinion is not shared by some eminent sea officers. Perhaps the most interesting part of this Dialogue is that relating to ceremonies and flags. His definition of the ' Jack ' and description of it in his list of contents as a ' novel flag,'¹ taken with his use of ' jack ' elsewhere,² are sufficient to prove that ' Jack ' is merely a diminutive, and to demolish the fatuous derivation from ' Jacques ' that was once fashionable.

The Sixth Dialogue is largely a compendium of current ideas upon the handling of ships and fleets in action. Butler, like all his contemporaries, had no experience of fleet actions. If he had, these ideas might have been of more practical value, but at any rate they illustrate the evolution in ideas concerning fleet tactics that took place between the battles with the Spanish Armada in 1588 and the battles of the First Dutch War. His remarks on single ship actions also indicate a lack of practical knowledge. Thus, when (on p. 296) he gives instructions for the ' second charge ' upon an enemy's ship from to windward, he apparently wears his ship while fighting broadside to broadside !

¹ The earliest known use is in 1633.

² P. 120.

In the earlier MSS. this work concluded with the following words :—

‘Admiral : Well, Captain, I thank you for these your discourses and informations about our marine affairs. We have been somewhat long in them, and to say truth the largeness and extent of our theme might well require it ; and besides it is a subject but rarely treated of by any writer, though certainly as needful to be thoroughly known as any one whatsoever of this nature, and especially by us of this island. For I verily believe that whensoever we lose the Sovereignty of our seas (which God forbid) the next loss we shall feel will be that of our land.’

The Editor desires to acknowledge his gratitude to Messrs. G. E. Manwaring and G. W. Younger for their assistance in the effort made to trace the full details of Butler’s life ; also to Mr. L. G. Carr Laughton, who has been so kind as to read the proofs.

Title page of Sloane MS. 758

A
DIALOGICALL DISCOURSE
CONCERNINGE MARINE AFFAIRES
Betweene
THE HIGHE ADMIRALL AND A CAPTAINE
att Sea

Represented in
SIX DIALOUGES OR DISCOURSES

THE FFIRST
About Comanders in Cheife

THE SECOND
About the Comon Mariner

THE THIRD
About the victuallinge out of ffleets

THE FFOURTHE
About the partes and wordes of Arte belonginge to a Shippe

THE FFIFTHE
About the choyse of the best Shippes of Warre

THE SIXTHE
Of the orderinge of ffleets, in Chases, Bordings, flights

Collected and Penned
By CAPTAINE NATHANIELL BUTLER
Anno 1634

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DIALOGUE THE FIRST

About Commanders-in-Chief.

ADMIRAL. It having pleased his Majesty to honour me with that Command of so high entrust, as to be Admiral of his kingdoms, I am for my part desirous to take the nearest course to be informed in the particulars of my charge, that, according to the etymology of my title, I may be a true supervisor of my office. To this end, Captain, I have now sent for yourself, as taking it for a ready way to attain hereunto by the admittance of a free access unto me of such as yourself, and a frequent advising with you.

CAPTAIN. I hold it good for us seamen that we have a Lord Admiral restored unto us, and especially one of your mind, and one of your rank. For hereby we shall not only know our certain addresses, but find a personal admittance and due and speedy dispatches ; and not be tired out by numerous applications and tedious attendances, nor slighted by the puttings off of subordinate officers : inconveniences which must needs befall us whensoever this great office is executed by many hands. And besides, this great place being officiated by a great man, I mean a man of eminent birth (as your Lordship) as well as eminent virtue, it must needs attract our nobility in general,

even those of the highest form, to apply themselves to the theory of this so brave and so concerning a profession ; and so be made as well fit, as ready for employment, whensoever the providence and occasions of the State shall call them out to the practice. And certainly when such as these shall be free of access, and converse, and withal be found of that sufficiency and knowledge as that they shall not need to depend too much upon the prompting of others, it must needs prove a prime happiness not only to seamen in particular, but the commonwealth in general.

ADMIRAL. You say well, Captain ; to which I will add this much touching the chief officers of his Majesty's Navy, subordinate to the Lord Admiral ; as the Vice-Admiral, the Treasurer, the Controller, the Surveyor, and the rest of them ; as it is most necessary that they should be men of the best experience in sea affairs, and in the knowledge of all necessities and materials belonging to shipping, so in respect of the point of judgment in counsel, converse and conference, it is no less necessary that they should be also men of some general learning, and of noble birth, and not chosen merely for their marinership, or their often going to sea.

CAPTAIN. And to this end, my Lord, for the better breeding of our nobility in these ways, and so to make them fit for their honourable offices, I find no reasons why our Merchant Adventurers and such as traffic much by sea and shipping, should not be enjoined by an Act of State to employ some gentlemen in all their voyages abroad, nor why gentlemen should think scorn of the employment ; sure I am that the advised and provident state of Venice hath a settled Ordinance, that every ship of theirs shall and must carry, at the

least, one gentleman of Venice in every one of their ships and galleys, and allow them diet and a stipend.¹

ADMIRAL. It were a course worthily imitated ; for it is true with Thucydides (lib. i, fo. 77) that more experience is to be gotten by service at sea in land-service itself, than in sea-service by the use of land-service ; the knowledge of naval affairs being attained with more difficulty than the other, as being more against the very nature of man (as it were) ; and being an art beyond most of others, not to be snatched at, at idle times and on the bye, but rather requiring so full a taking up of a man in the learning of it, as for the time nothing else is to be looked after ; and hence indeed, it is to be wished (as you say) that not only such common men as make sea affairs their profession and trade of life, but much rather the nobility in general, who are to be their commanders, would greedily addict themselves both to the theory and practice of this so mysterious a knowledge.

CAPTAIN. And this also, my Lord, would conduce much for the ease and assistance of your Lordship, and such as command in chief ; by a fit composition, out of these, of a Council of War for you ; wherein if the General or a chief Admiral have the main stroke in the elections (as it seems to me it is reason he should), that then he would be pleased to be so well advised in his choice, or not so much to ground his judgment upon the length of time that they have served at sea, as from the condition and nature of their services

¹ According to A. Wiel, *The Navy of Venice*, stringent laws enacted in the fourteenth century required the captain of a merchant galley to be a patrician, and 'eight young nobles were to embark on each of these galleys in order to gain as intimate a knowledge of handling a ship and getting used to the sea as of conducting a good bargain.'

that they have been employed in ; to which end it is pertinent that he have their several services, actions, qualities, and names, in a register, out of which he may readily serve himself for all turns.

ADMIRAL. But why should the Admiral, in the election of his Councillors, rather take notice (as you say) of the quality and condition of their employments, than of the time and length of their services ?

CAPTAIN. Because, my Lord, a man may have a command in a merchant voyage, ten times to and again from the East Indies, and yet be fitter for a Master than a Captain in one of his Majesty's ships of war or an ordinary man-of-war¹ ; nay, a man may make himself a titular Captain, and a titular General too, and be all his life long in a piratical way, and yet understand little or nothing concerning the true management of a stout and well ordered fight at sea. And the reason hereof is in that the roving pirate assaults not where he expects a firm resistance. And the merchantman fights only (and that not always neither ; orderly, never) when he is assaulted. So that neither of these, but may probably enough be very much to seek in the accomplished knowledge of true and thorough fights, and especially in the due forming of sea battles with a fleet ; all of which are requirable of a fit Commander in his Majesty's royal² ships, and especially fleets for war. And therefore whosoever he be that shall ground his elections for the questing out of abilities answerable to his Majesty's services and the State's, from experiences and practices in any of these kinds only,

¹ *I.e.* a privateer.

² ' Royal ' usually meant : of the first rate ; here apparently it means no more than H.M.S.

I am much deceived if he find not himself much mistaken.

ADMIRAL. And yet you said but now, that it were to be wished that our nobility in general were bred up, and taught to be seamen, by going in merchant voyages ; how is it that you now say that those will deceive themselves that fetch elections for able sea commanders out of this way ?

CAPTAIN. My Lord, it was not propounded as a course to complete them so fully, as immediately from thence to admit them to a command in chief in any of his Majesty's royal ships ; but only thereby to inure them to an endurance of the sea, to learn them sea language, to get sea legs, and to know seamen ; that so by degrees they may come to be Lieutenants or (if it must be so) to be Captains in some inferior ships of merchants serving for the time in his Majesty's pay and service ; and from thence upon a due improvement of themselves to be called up higher to employments of greater charge, and higher nature. For otherwise, when charges and commands of so great consequence and weight are cast upon ignorant men merely upon favour, conceit and court commendation, and taken up upon trust, how can it be but that these ignorant and arrogant intruders must procure scorn to themselves, and scandal with the world, besides the injury hereby done to the deserving, in depriving them of their dues, to an absolute discouragement.

ADMIRAL. It is to be believed (as you say) that an able council of war, and well chosen, may advance much to the ease of the General or Admiral and the forwarding of all services ; and indeed there is nothing more absolutely necessary. But this is not to be had at sea without much difficulty and uncertainty, by reason of many

accidents, which may hinder such meetings ; whereas there is no place where opportunities offer themselves with more variety, nor where advantages may be gotten or lost sooner, and more irrecoverably, than at sea.

CAPTAIN. It is true ; and therefore it is of absolute necessity that not only the Captain commanding under the Admiral in his own ship be the most able and active of all the rest of his fellows, but also that some selected and choice persons of the Council of War be continually resident with him, aboard his ship ; whereby if not all, yet some of the primest of his counsellors, may be always ready at hand to advise with him upon all occasions, by which this inconvenience may receive a great part of a cure.

ADMIRAL. We have formerly consented in this, that the nobility are by all means to be encouraged to the sea services ; and that the chief Officers of the Navy, and those of the Council of War, are to be of noble birth and education : and doth not this hold as well, in all the other Captains ?

CAPTAIN. Truly, yes. And that not only for the better breeding (as aforesaid) of our nobility in general, in this kind of service, which so much concerns us ; but also in regard of that free and frequent access and converse, which in all actions of war is requirable and unavoidable betwixt the General himself and the Captains ; and for which the mere bred seamen are generally very ill provided ; and besides it may probably, and with reason, be expected (in regard of their very blood and birth) that the touch of honour and reputation should work more actively upon them, than with the right-down mariner, and mere sea-bred man, be he otherwise, in point of sufficiency for his trade, never so practic and sufficient.

And surely as in the fitting up of a gentleman for an able sea commander, the practice is to be added to the theory, so much more than practice only is requirable in making up of a Captain out of a mere mariner. For besides the civility of carriage and behaviour, which is necessary to the place he holds and the company he is to keep, there is also a good general judgment to be sought after, with an entertainment and garb fit for all converse, and the like occasions. The which how unlike to be found with the mere bred mariner, let every indifferent judgment judge.

ADMIRAL. I am so far, Captain, from opposing of you in this particular as I shall be contented to add this much unto it in relation to the down right seaman; that they are not hastily to be admitted so much as to go Masters in such ships wherein they are part owners, whilst such ships serve in his Majesty's pay. For in this case it may be probable enough that some of them will show themselves less forward in point of service, and more favourable to their beloved ship's sides, sails, and general tackling, than can stand with the honour and welfare of the Service. Nor can the redress at the instant be found by the Captain (be he never so sufficient, much less if ignorant) because the Masters of ships are of necessity to be entrusted in many particulars, and in this particular especially, that the sailing and conduction of the ship belongeth to them in peculiar.

CAPTAIN. And by the same reason, my Lord, and from the very same ground, it seems to me unfit also, that the Masters of such ships as are in his Majesty's service should be entrusted with the placing of any of the subordinate officers in those ships, and have commissions for the im-

pressing of the common men into them. For it may be doubted that in this employment they may mainly aim either to bring in as many of their apprentices as they can without the least respect of sufficiency ; or at the least, of their old acquaintance and confidants, who depending upon them shall serve to make up a pack, as well for a party as a concealment ; that so they may contrive and act what they list. And hence is it, that nowadays, let one go aboard a tall ship, ready to go out to sea, and he shall rarely find ignorance out of the round-house ; but commonly the best mariners and most sufficient men thrust afore the mast, and then turned to be haulbowlines, by mere partiality ; whereby their abilities are lost to public use, and themselves utterly discouraged. And this the Captain shall never be able to discover, until it be too late ; much less redress, by reason of his coming in amongst them as an absolute stranger, by not being admitted but at the very last cast, nor perhaps till the whole ship's company do enter into sea victual ; a course which I dare be bold to say will multiply all these disorders ; and may well advise all men of ability to retire themselves.

ADMIRAL. The like exception also, or a greater (in my opinion) may be made against those resident (term of life) Officers which are in his Majesty's ships royal : as Pursers, Gunners, Boatswains and Cooks.¹ For these likewise have the means to cull out a company of their own consorts, who do wholly hang upon them ; and (perhaps) are neither serviceable in their places, nor indeed in any other that they shall be used in.

So that for my part I shall not readily give my

¹ *I.e.* the warrant officers retained in ships lying up 'in ordinary.'

voice, for the future, that any of these may have any power or commissions to make up their own gangs, or companies, when they are to be in action abroad. I confess that whilst his Majesty's ships lie idle in the harbour [and are over the chain at Chatham] these kinds of resident officers are of an absolute necessity. For otherwise how can those ships be conveniently guarded? How can the implements of their cook rooms, their sails, cables and general tackling, be kept and preserved? How can they be kept clean and in point, unless such officers as Gunners, Cooks, Boatswains, and Swabbers be always held aboard them? And how can these men be handsomely provided with victuals aboard these ships, unless there be a Purser to take order for it? I grant likewise, that these offices for term of life may be a competent reward for such old seamen as have been long servitors, and well deservers in his Majesty's Services.¹ I deny not therefore but that these officers may still be admitted and held on. But yet it follows not that these very men, and none but these, are to be used and employed in their several places, when their ships are to be abroad in action. For they may (at least for the time) deliver over their stores by inventory to any such as the present Captains shall find to be more fit for the service in hand, and are better known unto them; and be again admitted into their places at the return of the ships. Or at the utmost it is fit that it should be left unto the Captain's choice, whether they shall go on with him in the voyage or not.

And much less doth it follow that these old resident officers shall be allowed (though they go

¹ There was no pension system, and no mean between full pay and discharge. Among the State Papers of 1632 is the case of a boatswain of a ship in ordinary aged 100.

the voyage) to have the privilege (which they now claim by prescription) to make choice of their several gangs when the ship is to be fully manned. The complement whereof in some of his Majesty's royal ships amount not to less than forty, fifty, and threescore in number in their peculiar places, as in the Gun-rooms. These, I say, in all times of service are in all equity and reason to fall within the compass of the Captain's approbation ; that so he may the better stand answerable for them ; be the better obeyed by them ; and have the less ground of complaint if he be not.

And as concerning the pressing of mariners in general, and especially such of them as are to serve in his Majesty's ships, it is too apparent that either the care herein hath been very little, or the knavery very great, insomuch that generally they of all other ships are found to be worst manned which ought to be best ; insomuch that it is a grown proverb, that the press-master, or muster-master, carrieth the able men in his pocket ; which is as much to say, that for bribes they let pass the most serviceable, and lay hold on the meanest ; a practice of a most desperate consequence, whensoever the use of men are most requirable, and especially in ships of such charge.

CAPTAIN. I see not how your Lordship can be rationally gainsaid in any of these your propositions. For though they may be distasteful to some, yet will they prove beneficial for the public service.

And surely if any elections of this nature shall be left to any, out of the precinct of the Admiralty : (and they seem to be over many to be all made there), it must needs in all right reason belong unto the Captains, whose reputations and in-

terests stand chiefly, if not solely, engaged for all failings ; and whose commands also (which of late have been much eclipsed and interposed) shall hereby be well restored and made good. Neither (to speak truth) can I discern with what justice any one Captain may be questioned for any miscarriage of his ship's company, or touching the short executions of the Admiral's instructions and commands, as long as he is thus barred from the choice, and so the use, of his instruments to work withal. Let him have tools of his own provision about him, and then stand answerable for all miscarriages in general ; but not till then.

ADMIRAL. I am fully of your opinion touching this particular ; and shall conclude that, as the Admiral is to be appointed by the Prince, so the Council of War to be nominated by the Admiral, as also the Captains of all the ships ; and the elections of all the inferior officers, and the common men (as at land, or should be at land), to be left to the provision and choice of the captains of the ships, to furnish their several companies. But before we proceed any further in these our conferences, we will propound all the distinct officers belonging to a royal ship of war ; and consider of all their particular charges and duties ; and do you, Captain, name them unto me that I may interrogate accordingly, beginning with the meanest and so upwards.

CAPTAIN. I shall, my Lord ; and this is the Swabber of the ship, and his office and charge is, to make and keep the ship clean, and that as well in the great cabin as everywhere betwixt the decks ; to which [end] he hath also a mate or two allowed him, according to the burthen and bigness of the ship. And they are to see the ship to be well washed within board and without, and especially

about the gunwales¹ and the chains; and for the prevention of infection to burn pitch sometimes, or the like wholesome smells, between the decks. The chief swabber is also to oversee every private and particular man's cabin and sleeping place, and to admonish them all in general to be cleanly and neat; and to inform the Captain of all such as are not, that they may not by their nastiness be offensive to their neighbours.

ADMIRAL. This is a most necessary officer. And if he do thoroughly perform his duty, I easily believe he may have his hands full, and his mates likewise, and especially if there chance to be any number of landmen² aboard. Go on.

CAPTAIN. The next office is that of the Quarter-masters (of whom there are more or less as the vessel is more or less in burthen). And their peculiar duties are to rummage in the hold of the ship upon all occasions; to accompany and overlook the Steward when he delivers out the victuals to the Cook and when he serves and pumps the beer; and to take care that he commit no abuse nor wastes. They are also to keep their watches, when the ship's company is quartered; every quarter being to have one Quarter-master at the least in their watch, whether it be quarter watch when the ship is in harbour and at anchor, or half watch when it is at sea, and in foul weather. These Quarter-masters are also to take their turns in the cunding³ of the ship, and to look to him at the helm, that he be diligent in his steering; and to suffer none to be idling in the steerage, that may disturb him and make him

¹ gunnwalls.

² Usually by this term Butler means soldiers, though occasionally he uses it in its wider sense of men not trained to the sea.

³ conning.

careless of his hand. To which end some of them are continually to keep a station upon the quarter-deck or half-deck or at the round-house door, or wheresoever they may best look to him at the helm and direct him.

ADMIRAL. These are particulars, every one of them of good consequence, and to be officiated by good men ; and that not only in respect of the preservation of the victuals and the orderly and honest distributing of it, but also, by way of giving good satisfaction to the whole ship's company, that they are not defrauded of their dues in that kind ; and so may the better be held quiet and stilled from such causeless surmises and mutinies of that nature, as of late days these people have been much addicted unto. Proceed to the next sea-officer.

CAPTAIN. And that is the Steward ; whose part it is to take in the mass and proportion of all the victuals and all the kinds of them, at the hand of the Purser of the ship ; and to see that it be well conditioned, and conveniently stowed in the hold of the ship ; as also to look well unto it when it is there. He is likewise to take into his custody all the candles, and all the things of that nature belonging to the use of the ship ; to look carefully to the bread in the breadroom. He is also to share out the proportions of all the several messes ; and to this end he hath a general room in the hold of the ship, called the steward's-room, where also he sleeps and eats.

ADMIRAL. This office is providently introduced ; for though it seem, at the first sight, to be an assistant only to the office of the Purser (and indeed many times the Steward and the Purser are but too well acquainted), yet being cautiously conferred, and honestly discharged, it may be

made use of, for many needful discoveries, and serve as an overawer of the Purser himself, and all such abuses as may be attempted in that kind. Proceed to the Purser.

CAPTAIN. The office and peculiar part of the Purser is to receive the full quantity, and proportion of all kinds of victual, for the food of the ship's company, from the hand of the Victualler of the Navy. He is to look diligently that it be every way well conditioned, and well put up. He is to see it to be well laid up in the ship's hold by the Steward. He is also to take the list and catalogue of the names of all the men and boys of the ship's company ; and punctually to set down the day of every one's admittance into pay, from time to time, and acquaint the Captain with every particular, that so at the welcome day of pay, the general Pay Master, or Treasurer of the Navy, may issue his disbursements, and pay by the Purser's book.

ADMIRAL. This officer therefore ought to be both of integrity and ability ; for unless the Captain and the Muster-master (if there be any) look well to him in the point of having his company full, and the Steward in taking notice that the full proportion of victuals be brought aboard the ship, this Purser may purse up roundly for himself ; and that without all possibility of discovery. And therefore as it is not to be wished, that the Steward be over-well acquainted with the Purser (as I said even now) ; so there may be as much danger, if not more, when the Purser and the Victualler are too familiarly interwoven.

CAPTAIN. The next officer, my Lord, is the Cook ; and his work is (at sea as at shore) to dress meat according to the number of the messes of men he hath aboard. And this meat he is to

receive from the Steward by tale, and some of it by weight ; and, being cooked, he is to deliver it to such persons as are chosen by every mess for the fetching of it away from him. And these men it behoveth himself and his mates to heed carefully, lest both himself and some other messes be cosened of their dues, by delivering twice, or a double allowance to one and the same mess, which is a frequent cheat amongst seamen, and pleaseth some of them almost as much as their very dinners besides. This Cook is also to take especial care and heed that both the flesh and fish be timely and sufficiently watered, and shifted, for the more wholesome feeding of the ship's company. To which end there are certain men to be appointed to do this particular work, being from their employment termed Shifters¹ ; and to be ranked men of the cook-room.

ADMIRAL. I doubt not, but these Cooks know well enough how to lick their own fingers ; and I assure myself that their fat fees make them gainers, whosoever loseth by the voyage. Go on.

CAPTAIN. After the Cook comes the Coxswain, and he is to have the peculiar² charge of the barge or shallop belonging to the ship, and of all the implements ; and so to be ready with his boat and boat's company or gang of men, either to wait upon the Captain, or any person of fashion that the Captain shall appoint to be fetched from the shore, or carried thither or anywhere else ; and he is to see her trimmed with her carpet and cushions, and to be in person himself in her stern, with his silver whistle to cheer up his gang ; and with his hand

¹ It is not clear whether their duty was concerned solely with changing the water in which the salt meat was kept ; the word 'shift' also meant : divide into portions, though this meaning was then nearly obsolete.

² Particular.

to steer the boat ; and to keep his men together when he goeth to the shore. And this is the lowest officer in a ship that wears a whistle.

ADMIRAL. How many be the officers that carry whistles in a ship of war ?

CAPTAIN. They are three : The Master, the Boatswain, and the Coxswain, for though the Captain may do the same at his pleasure, yet it is neither usual, nor necessary.

ADMIRAL. Well, go on, and tell me what the peculiar office and charge of the Boatswain is.

CAPTAIN. The office of the Boatswain is to take into his custody, and to keep under his charge, all the ropes in general belonging to the ship : with all her cables, anchors, and sails ; her flags, colours and pendants ; and is to stand answerable for them. He is also to take care in peculiar of the long boat and the furniture thereof, and is either himself or his Mate to go in her, and to steer her upon all occasions. He is likewise to call up all the several gangs and companies of men, belonging to the ship, to the keeping of their watches, the exertions of their works and spells (as they call them), and to see that they do them thoroughly ; and to keep them in peace, and in order one with another. Lastly, he is (in the nature of a Provost Marshal at land) to see all offenders punctually punished, either at the capstan, or by being put in the bilboes, or with ducking at the main yard-arm ; accordingly as they are censured by the Captain, or by a Martial Court.

ADMIRAL. This officer must needs be of much use and necessity for the due disciplining, and ordering of the whole company belonging to the ship ; and it behoves him to be stirring, stout and faithful.

But, Captain, before we proceed any farther with our sea-officers, and because you said even now, that the Boatswain of a ship of war is at sea in the nature of a Provost Marshal at land, I would have you to make mention of all the usual and customary punishments practised aboard ships of war ; as those at the capstan, bilboes, and yard-arms, which you named even now.

CAPTAIN. Where and what these parts of a ship are, we shall have occasion to explain hereafter, when we come to speak of the appellations and denominations of them all in general.

As for the punishment at the capstan, it is when a capstan bar being thrust through the hole of that called the barrel or burrell of it (of which also more hereafter) the delinquent's arms are extended to the full length and so made fast unto the bar crosswise ; having sometimes a basket with some great shot in it or some other weight hanging about his neck. In which posture he is to continue until he be made either to confess some plot or crime whereof he is pregnantly suspected, or that he have suffered such condign punishment as he is sentenced to undergo by the Captain or Martial Court.

The punishment at the bilboes is when a delinquent is put in irons, or in a kind of stocks made for that purpose, the which are more or less heavy and pinching, as the quality of the offence is found to be, upon good proof.

The ducking at the main yard-arm is when a malefactor, by having a rope fastened under his arms and about his middle and under his breech, is thus hoisted up to the end of the yard and from thence is violently let fall into the sea, sometimes three several times one after another ; and if the offence be very foul he is also drawn under the keel of the ship, which is termed keel raking.

And whilst he is thus under water a great gun is fired right over his head, the which is done as well to astonish him so much the more with the thunder of the shot, as to give warning unto all others of the fleet to look out and to be wary by his harms.

And these are the most common and ordinary ways of inflicting punishments upon delinquents at sea, and are practised, even in merchant ships, by the Masters who command there in chief. But in capital causes, as murders, mutinies and the like, these punishments are so transcended that instead of a ducking at the main yard there is a hanging to death executed in the same place.

But this is not to be entrusted with every Commander, much less every Master ; nor, indeed, is ever done but by some especial commission. And in Queen Elizabeth's time, I find them thus prescribed in the commission :

If any one man killed another, he was to be bound to the dead man, and so thrown into the sea.

If anyone drew a weapon, wherewith to strike his Captain, he was to lose his right hand ; if any man drew a weapon within board, in any way of tumult or quarrel, he was to do the like.

If anyone pilfered or stole away any goods or monies from any of his fellows, he was to be thrice ducked at the bolt-sprit, and then to be dragged at the boat's stern to the next shore, and there left with a loaf of bread, and a can of beer.

If anyone designed to steal away any of the royal ships, belonging to the Queen, the Captain was to cause him to be hanged overboard by the heels, with his hands tied behind him, until his brains were beaten out against the ship's sides, and then to be cut down, and let fall into the sea.

If anyone slept in his watch ; for the first time

he was to have a bucket of water thrown upon his neck, which is called heading with a bucket of water ; for the second time he was to be haled up by the wrists and to have two buckets of water poured into his sleeves ; for the third time, he was to be bound to the mainmast with iron plates, and to have some gun-chambers or a basket of bullets tied to his arms and so to remain during the Captain's pleasure ; for the fourth time, he was to be hanged at the bolt-sprit, with a can of beer and a biscuit¹ of bread, and a knife, and so to hang, and choose whether he would cut himself down, and fall into the sea, or hang still and starve.

If any man stole away from the ship he was to serve in, he was to be hanged.

If anyone mutinied about his allowed portion of victuals, he was to lie in the bilboes during the Captain's pleasure. These I find to be the punishments inflicted for capital offences.

As for all petty pilferings and commissions of that kind, they were generally punished with the whip [the offender being to that purpose bound fast to the capstan]; and the waggery and idleness of the ship boys paid by the Boatswain with the rod. And commonly this execution is done upon the Monday mornings, and is so frequently in use that some mere seamen and sailors believe in good earnest that they shall not have a fair wind until the poor boys be duly brought to the chest ; that is, be whipped every Monday morning.

ADMIRAL. There is questionless nothing more necessary than due discipline at sea. But let us now return to our sea officers, and tell me what properly belongs to the Joiner's place.

CAPTAIN. This officer is entertained only in

¹ 'biscott.'

great ships; and is rather for neatness than necessity; as to wainscot and seal the great cabin (but this seeling is at the present much out of use, and worthily, as its being a harbour for rats; and likewise in regard that it makes an offensive cracking and noise whensoever the ship worketh much in a grown sea. This Joiner is also to trim up and to keep in repair all those wainscot beds wherein men use to sleep, being fastened to the ship's sides. He is likewise to settle the tables and to fix them; to contrive handsome and convenient benches in the cabins and round-house, and elsewhere for the stowing of small commodities; to make also those little boxes by the ship's sides which are termed lockers; and to fit those little windows and light holes which are cut out round about the great cabin, and elsewhere, being called scuttles. These and the like implements are the work and charge of this our Joiner, being as aforesaid a sea officer¹ only in great ships; and indeed is as a limb or an assistant to the office of a Carpenter.

ADMIRAL. And what is the duty and office of the Carpenter?

CAPTAIN. You know, my Lord, that it is a ship carpenter's trade to build ships, as the land one to build houses, but his peculiar charge at sea is to keep ships in repair, when they are built. And to this end [besides his full proportion of tools], he is to have in his keeping all the materials requirable hereunto; as pieces of timber wherewith to fish, that is to strengthen, the masts; some spare yards lashed, (that is made fast) to the ship's sides, if any mischance should befall to the old ones; [to be provided with all necessaries for the mending and repair of the pumps]; to

¹ *i.e.* employed at sea instead of in harbour.

have (especially in a long voyage) a spare rudder, or at the least, that the proportion of the rudder be precisely marked out whereby a repair be made if the old should fail. He is also to be provided with a sufficiency of stuff for the well caulking of the ship and to stand answerable for her being duly caulked. To which purpose it is a good providence to assign to every single caulker the proportion that he, for his part, is to perform ; that so upon any default the failer may be discovered, and besides some personal punishment and infliction, be forced to contribute towards the loss ; the which will make them all to be the more diligent in their care and working, and thereby prevent many dangerous negligences. It is fit also that before the ship go abroad to sea some trials be made to know whether she be well caulked ; and one good course may be by filling her with water as she lies, the next tide after she is finished in her caulking ; for no seam though never so well pitched, unless it be withal as well caulked, can endure the force and poise of the water, and therefore must needs discover the defect. The Carpenter likewise is to have an especial care to be well stored with all such needful provisions as may serve for the stopping of all accidental leaks. In brief he with his mate and gang are to so employ themselves that the ship may be well fitted every way for her well swimming and sailing, and that she be so kept all the voyage, unless some extraordinary accident force to the contrary.

ADMIRAL. Since you thus make mention of leaks ; deliver your opinion, how they may be surest found out in relation to the part, and how best stopped when they are found out, and especially at sea.

CAPTAIN. When leaks are, they are easily known to be by the trying of the pumps and many other visible ways ; so that the masterpiece consisteth in finding where they are, and in what particular part, and especially when they are below and near the keel of the ship. And though there be many courses in practice conducing hereunto, yet I shall propound unto your Lordship only two for the present, the which for my part, I conceive the most probable and sure. The one is by the use of an empty earthen pot, the mouth whereof is to be placed upon some piece of a board within the hold of the ship whereto any man laying his ear as close as possibly he can, if there be any inlet of water in any part of the hold, or near unto it, it will be audibly heard ; and the nearer or farther distant from the very part where the leaking is, the more or less it must needs be heard. So that by the removing of the pot and board, to and fro from one place to another, and the application of your ear in all these removes, you shall at last by the conduction of your hearing attain unto the distinct knowledge of the certain part and place where the very leak is. And the same may also be performed by laying the broad end of a trumpet to one's ear, and setting the other end to all those parts of the ship where any suspicion is that the leak may be, so that by removing it in this manner from place to place, the certain and particular part where the leak is, may at last be found and discovered.

ADMIRAL. But being thus discovered how may they best be stopped ?

CAPTAIN. When these leaks chance at sea, they may be stopped either within board or without board. The stopping of them within board,

especially when the leak is low amongst the ground timbers or hooks, is best performed by sinking down some tallow and coals mixed together and in some cases (when the leak is very great) pieces of raw beef, oatmeal bags, and the like stuff ; but if the leak be anything high it is easily and readily stopped by the nailing of a piece of sheet lead upon the place ; and if it was made by a shot it is then best done by the driving in of a plug into the hole, the said plug or stopple [of wood] being to be wrapped about with canvas.

If the leak be to be stopped without board and that it be not over low towards the keel, it may be done by causing the ship to heel to the contrary side, and so to fasten some sheet lead upon the part ; if it be found over low to do it this way, the course is to stitch or sew up a piece of a course¹ sail, or (which is better) some remnant of a small netting, into the form of a bag with some long and well opened rope yarns put within it, and then, sinking this bag under the keel, to bring it up as near as may be directly against the place of the leak and there let it lie, that by the indraught of the water the oakum or rope yarn that is within the bag may be sucked into the hole or crack of the leak, and so be stoppèd, or at the least the water somewhat restrained from so free an entrance as before.

ADMIRAL. These are probable ways for the doing of this work and rationally persuade me to the use of them. Let us now return to our sea officers, where we left when we fell upon this digression. And the next in order is the Master-Gunner's place.

CAPTAIN. The office of the Master-Gunner of

¹ It is not clear whether he means the piece should be taken from one of the old courses, or whether he really means 'coarse.'

a ship of war is to take into his charge all the ordnance that the ship carrieth, and to see that they be serviceably mounted and sufficiently supplied with their sponges, ladles and rammers. He is to take especial care in any foul weather at sea that all these great guns be traversed and haled within board, and chiefly those of the lower tier, and that the ports be sufficiently caulked up; and this not only in foul weather at sea, but I shall advise also that the same be done in all turnings up into a river or harbour for the prevention of any sudden mishap by the heeling of the ship upon the bringing of a tack aboard, and the freshing of the wind, whereby the ship may on the sudden take in so much water by her ports as may overthrow her.¹ It is most necessary also that all the great guns of the ship be at all times so thoroughly breeched and made fast as that none of them may break loose; to the eminent peril of the foundering of the ship, by the springing of the head of some plank or the forcing out of her sides by the weight of the gun running against it. The Gunner is also in all times of fight to take order that every several gun be sufficiently manned for her traverses, charges, and discharges. He is likewise to be very cautious in the guard of the powder in the powder room, and by no means to suffer any fire to come within the place unless it be a candle upon special occasions, and then also fixed in a close glazed lanthorn. And he is to take and give an account of all the powder in the ship, and of the remainder thereof at all times; and to that end is to keep a reckoning in writing of every great shot that hath been made up on any occasion, nor is he to make any shot without the command and licence of the Captain, or in his absence the

¹ As the *Mary Rose* was in 1545.

Lieutenant. He is likewise to take into his custody and charge all the provisions and necessities belonging to the gunroom (which also is the proper rendezvous for himself, his mates, and gang), and is there to have ready, and conveniently laid up, a due number of cartridges fitted to the cylinders or bores of all his great guns, the which upon any present use, are to be filled with powder. He is likewise to have latten cases, wherein, in a fight, these paper cartridges are to be carried to avoid the peril of being fired by the way. And in this his gun room also are to be ordered and kept fixed all the small shot belonging unto the musketeers of the ship's company, together with their bandoleers and proportions of powder and shot ; the which he is to see filled, and to give an account of the expense.

ADMIRAL. This office had need to be officiated by a person of honesty, care and skill. And I am in doubt that as we are become somewhat defective in our sea officers in general, so in none more than in this. But go on to that of the Pilot's place.

CAPTAIN. Pilots are properly those who (upon coasts and shores unknown unto the Master) are employed for the conduction of ships into roads and harbours, or when they are to pass over bars or sands ; [or through serpentine and intricate channels]. And this they perform by their being acquainted with the depths, heights, and the flowings of the tides, together with their gettings from point to point, and the differences of those abroad and at sea, from those within the channels and about the shores ; and likewise by their knowledge of those kinds of sands as are moveable by the blowing of the winds ; and such as are pointed out by landmarks in the passage through any strait, or

up any river. It is necessary likewise that these pilots be thoroughly experienced in the running and setting of all currents, in those parts where they are to pilot their ships ; for currents are found very variable, according to the parts they run in. As upon the coasts of Brazil and the South Sea, the current runneth for the most part all alongst the coast, but nevertheless ever accompanying the wind ; and it is here an infallible rule, that twelve hours before the wind alters the current begins to change. The current likewise, that setteth betwixt Newfoundland and Spain, runneth sometimes East and sometimes West ; and I believe that this likewise is occasioned by the blowing of the winds, either the one way or other. I know well that in those parts of the West Indies, where the wind blows Trade, some mariners that have been in those parts do make themselves and others believe that the currents, in some particular places by the shore sides, do run to the windwards ; whilst, remote from the shore, they pass all ways with the wind. But for mine own part (who have seen and observed this as well as they) I rather apprehend that this is only where these currents meet with some headland or point in opposition to them, or where they run straitened betwixt some islands, whereby some eddy currents are occasioned, yet which for a short way may run contrary to the Trade Winds, and soon after return to their natural course ; yet which (in mine opinion) is constantly to the leewards, and especially where the wind blows always one way. And I am the more induced to this opinion by the observations made by Sir Edward Michelborne in his journell ¹ to the East Indies, where he found the current from the

¹ This ' Journey ' in the Tiger occupied him from 5 December 1604 to 9 July 1606. The account is in Purchas, I, iii.

beginning of November to the beginning of April to run to the southwards, and from April to November back again to the northward. But this (saith he) was caused by the monsoons ; that is to say, by those winds which at those times blow accordingly in those parts. But of this we shall speak more hereafter.

It is requireable also in a good Pilot that in the sailing in or out of any river or haven he be sufficiently acquainted along the reach from buoy to buoy, or beacon to beacon ; and that he be a diligent observer of all the capes, points, steeples, and all other the like marks ; and how the mouth of the haven reacheth into the sea, and what depth it hath as well within as without. And when the ship is farther out in the offing, he is to note what hills or downs, towers or castles are first to be seen, and to portraiture their forms with a pen upon several strokes of the compass, as they change their forms and manner of posture in sailing by them ; and at the same time to use the lead often, that so he may the more perfectly be assured where and how they bear off, in such and such a depth. And in passing by any strange or not before known land or island, it is the part of a provident pilot to take the lying of the coast, as it shows itself in several places. And if the ship come anywhere there to an anchor, he ought to observe all the points and headlands, and any other notorious mark, both within and without ; that so both the place and course may be known and practised at any other time. All these (I say) are the requirable parts due to a good Pilot.

And for the better proof and approbation of the sufficiency of these Pilots, I could wish that none might be admitted to undertake this charge but such as shall pass, upon due examination, from the

allowance of the four Masters of England,¹ or some other able men, free from private respects and base partiality. And though these pilots are but rarely entertained for the whole of a voyage, but after they have done their parts in piloting the ships out into the offing are returned unto the shore, where they have their residence, and in this manner get their bread ; yet were it no unthrifty providence, especially in ships of charge, to have one of them continually aboard for the prevention of all hazards of this nature which at any time they may otherwise fall into, for want thereof.

ADMIRAL. I think so too, for though they may be certainly gotten for the piloting of ships outward bound, yet can they not be had from the shore by any means at all landfalls ; the which may be in such foul weather as no boat can possibly stir to and again ; and therefore I shall give my voice that to all the ships royal of his Majesty there be an allowance of a pilot to be always aboard when they are to be abroad in any voyage, or at the least that one of the Master's Mates be known to be sufficiently traded that way ; if not the Master himself. But let us now return to our officers, and in particular to that of the Master.

CAPTAIN. The charge and duty of the Master of a ship is to undertake the conduction of her to the places and ports whither she is bound, and to shape all such courses as may best conduce thereunto ; to which end he is to see the ship's

¹ The Masters Attendant. A contemporary MS. in the Admiralty Library gives their duty as follows : ' These men do attend at Chatham and Portsmouth by turns, as well to direct and oversee the Boatswains and Shipkeepers who are allowed in harbour to perform the ordinary service of the ships there, as also to carry in and out of the River such ships as happen to be prepared for the seas, and to see them rigged and fitted completely.'

company to be duly divided, and quartered for the true performing of their watches and for the trimming and management of her sails upon all occasions. He is likewise to look carefully unto the steerage and to appoint and order that some of the Quarter-masters be always ready and at hand, to oversee him at the helm. He is to enquire and take account of all the ways that the ship hath made and upon what points of the compass she hath been steered in every watch; and to this end he is to take a view of the traverse board, and to consider of all the dead reckonings. And by his observations, to take the height of the sun or star, or both, with his astrolabe, backstaff, Jacob Staff, or quadrant, and accordingly to prick his cart.¹ In the pricking of which cart and the casting up of his dead reckonings, the ship's traverses and the place of her instant being, especially when there is an expectation of any near landfall, the most provident and safe course is to allow rather more than less to the ship's way; that is to say, that in his accounts he be rather before her in her going than behind her, lest otherwise by the obscurity of a night, the blinding by fogs, or the rage of winds there be found a falling upon a coast, before it be looked for. And especially if that be true, which seamen observe, which is that their ships fly faster to the shore, than from it; an observation which indeed may rationally be received (though the common mariner, I dare say, thinks nothing of it), because when a vessel from the sea makes towards the land, she cometh with a continual motion, whereby she makes her way the swifter; but when she passeth from the shore, her motion is but newly begun. And in this respect, I say, it is fit to practise all cautions, and among the rest to use the deep

¹ Chart, or sea card.

sea line (of which more shall be said hereafter) or sounding lead rather a day or two too soon than an hour too late, and to be well skilled in the depths and quality of the grounds of all such coasts and channels as the ship is to be conducted unto. As for example at the entrance upon the English coast in that part which we call the Sleeve, and so up the channel between England and France. One league off the Lizard the depth is forty fathom, coarse sand, but clear ; and the more to the westwards the deeper water and the finer sand. One league off the Bishop and his Clerks, the sounding is sixty fathom, and the ground clean sand and finer than before, and the more to the westwards the finer the sand and the deeper the water.

It is to be noted also (and a sufficient master ought not to be ignorant of it) that when a ship comes first within soundings in the Sleeve, she must needs be in the latitude of forty-nine and forty minutes ; and then a northerly course is to be avoided, for fear of falling into St. George's Channel instead of that betwixt France and England. And being in the latitude of forty-nine and forty or within the sounding of sand (which is all one) you shall be sure to find this fine sand formerly mentioned, for otherwise, you are not in the easting and westing of the Sleeve. But being in this sounding, and duly observing what the depth is, take out forty fathom (being the depth one league off the Lizard) and the remainder is the distance of leagues from the Lizard. Again, the ground all about our coasts abroad or within ten leagues of them is sand ; but being above ten leagues within the channel, the sand faileth and you find strange ground and no sand, but only shells and gravel. So that being abroad at sea, and approaching our English western coast, unless you

find sand, you may safely judge that you are not near the easting and westing of the Sleeve by ten leagues at the least ; and thus you may judge by the ground. Then again for the depth ; the deepest water betwixt Scilly and Ushant is sixty-four fathom, so unless there be sixty-four fathom when you ground, the channel is not yet entered, for this is the true depth of the Sleeve ; from whence also may be assuredly collected thus much more that in entering the channel the side that you are nearest upon may be known by the ground ; for if you be most on Scilly side, the ground is sandy ; if on Ushant side, no sand at all is to be found ; and being in forty-four fathom, sandy ground, if it be clear weather, you are within ken of Scilly. And thus much touching the proper and peculiar duties and charge belonging to the Master of a ship.

ADMIRAL. But, Captain, the charge and command of Masters now-a-days seems to be of a far larger extent, especially in merchant ships, for here we find them in a command-in-chief, and many of them with the title of Captains, though I believe they were never commissioned, either by his Majesty or any of his Admirals or Generals.

CAPTAIN. Indeed, my Lord, they are of late many of them over-elevated this way ; and the rather because our merchants like not to have any gentlemen commanders in any of their ships, but leave the command to the Masters only. And this hath produced this common ill-effect, that these masters being blown up on this fashion of late, undergo the command of a Captain over them with a great deal of grudging and sullenness, even in his Majesty's own ships, much more in all such merchant ships as serve in his Majesty's pay ; and this the rather in regard that sometimes they meet with

very weak and patient captains. And as for their usurpation of the title Captain, I know no reason why it may not be questioned in a Martial Court, and perhaps it had been well if it had been done ere now ; for it seems an offence and presumption of the like nature and the same extent, as if some foolish, arrogant ass should entitle himself, my Lord, or Sir John, when he is no such thing.

ADMIRAL. Well, go on and proceed to the office of the sea Corporal.

CAPTAIN. His charge is to take all the small shot belonging to the ship as muskets, carbines, pistols, and the like, as also the swords and to keep them all fixed and in point. He is upon the times appointed by the Captain, to exercise all such of the ship's company as are assigned to ply their muskets in a fight, and to see that all their bandoleers be filled with good and dry powder and provided with bullets and their proportions of match delivered unto them. And upon all occasions of service, he is to be with them, and to keep them in order and action.

ADMIRAL. Though this be but a late introduced officer in a ship yet it is a necessary one, and especially to the perfecting of the practice of the fiery weapons. And withal it may lead, in a fit way, towards the making of a Lieutenant ; and therefore I shall advise at sea, that these Corporals might be gentlemen ; nor is there any cause why a gentleman should scorn the place.

CAPTAIN. You say right, my Lord, for a Lieutenant's place at sea in respect of hope and command, is as the Lieutenant's place at land. For in the Captain's absence he commands in chief and at his death may, of due, look to succeed him. Only he is to be admonished, that he be not too harsh in his commands, at the first, which is an

humour whereto many young men are too much addicted, but to carry himself with moderation and respect unto the Master, Gunner, and Boatswain, and the rest of the subordinate officers, that so he may not be despised, but loved and obeyed. And especially he is to take care to be observant to his Captain, and to be diligent in executing his commands and instructions.

ADMIRAL. Well let us now conclude, with the parts and properties requirable in a Captain at sea, who is to direct and command all the fore-mentioned officers ?

CAPTAIN. There is no doubt but that a sea Captain, having the charge of one of his Majesty's royal ships, hath as enlarged a commission and of as high a consequence committed unto him, and of as high a nature as any Colonel at land. For besides that in some of those ships there are not to be fewer than five, six, and seven hundred men to the full manning of them, when they are to go out to sea, and expect fighting (the which amounts to the number well near of some regiments), all of which are as absolutely under the command of the Captain, as the regiment under the Colonel, or rather more ; he hath besides over and above these bodies the entrust and charge of the ship herself, with all her ordnance, the value and worth whereof in some of his Majesty's ships is not less than fifty thousand pounds sterling. And as touching the point of honour and concernment, what greater hath this our Nation in martial matters, than in and by his Majesty's Navy ; or what greater disreputation and peril can fall out to us than that such a ship as one of these should either by the ignorance, cowardliness, or treachery of the prime Commander, fall into an enemy's hand.

In few words therefore it may be determined

that this Captain and Commander-in-Chief should bring with him an unsuspected loyalty, and an approved valour : with a full experience, and sufficient practice and skill not only enabling of him to exact an account of all his subordinate officers, in their several and distinct charges and offices, but so thoroughly to understand them, when they are given up, as to dive into their failings to discover their short executions, and to correct and direct to a full redress.

ADMIRAL. We will here end for this day's discourse ; I shall expect a progress to-morrow.

CAPTAIN. And I shall be ready to wait.

DIALOGUE THE SECOND

Touching the Common Mariner

ADMIRAL. As our first day's discourse fell upon sea Commanders-in-Chief, with their subordinate officers, so let this our second day's conference be about the common mariner ; and let us begin with that loathness or rather loathing, which of late days hath so possessed this kind of people against all service in his Majesty's ships and fleets. And let me have your opinion of the motives and grounds hereof.

CAPTAIN. I do believe, my Lord, there hath ever been this kind of disposition and humour in these kind of men, though somewhat more of late than heretofore. And I apprehend the motives may be these : 1^{ly}. Some procrastinations which they have met with in point of pay, at the end of the service. 2^{ly}. A gain and profit that they propound to themselves, by a secret trading in their merchant voyages, over and above their wages. 3^{ly}. The promising hopes that they flatter themselves withal, when they go upon their thirds,¹ in private men-of-war, with letters of mart. And 4^{ly}. The loose liberty and undisciplined life that they take to themselves, when they are entertained in any of these two ways, and especially in that of the private men-of-war.

¹ Take one-third of the value of the captures as their share.

ADMIRAL. These indeed are likely ways to work upon these kinds of men. But what remedies can you propound for the cure ?

CAPTAIN. For the first, as I conceive it hath been occasioned by the emptiness of his Majesty's exchequer ; so I doubt not but the wisdom of the State will provide for the future, either to be sufficiently furnished aforehand with these nerves of all great actions, especially military ones ; or forbear over-vast designs of this nature, until there be found a fullness of strength and growth fit to grapple with them.

As for the second, I must needs say, that this hath in good part been already balanced by his Majesty's late augmentation of seamen's pay in general, which hath been improved almost half in half. Nor is there any Prince or State that alloweth larger wages to seamen than his Majesty. And the late addition also, that of providing some convenient clothes for them beforehand, hath been well thought upon. For these lads are generally known to make more of their bellies than their backs ; though they are in nothing more disabled in their services, nor more peevish in their complaints, than by the sense of this want, when they are abroad. So that if with these clothes some small proportion of their pays were imparted unto them aforehand by way of imprest monies, I assure myself they might be wrought upon not only to a constant stay in his Majesty's services, but to a willing employment of themselves in them ; or at the least would leave them utterly unexcusable in respect of this particular.

ADMIRAL. And this might be done also without any loss to his Majesty anyway, and especially when his Majesty's coffers shall be conveniently

filled. And that withal a care be taken that these imprest monies be not farther entrusted with themselves than from day to day or at the most from week to week [for spending money sometimes, when they go ashore]. Proceed to your third observation, which was the extravagancy of their hopes, in point of pillage, when they go abroad in private men-of war with letters of mart.

CAPTAIN. As for the business of pillage, there is nothing that more bewitcheth them, nor anything wherein they promise to themselves so loudly nor delight in more mainly. Insomuch that I have known some of them who, although they might of due expect a hanging from their own Commanders at their returns for their disobedient going out, and did thoroughly adventure the cutting of their throats by the enemy in their going out, yet stuck they not to rove into an enemy's quarter, three or four miles, in hope only to pillage some rotten household stuff. And I did see one of these make his brave retreat with a feather bed on his back, all that long way in an extremity of hot weather ; although it was not worth ten shillings, when he had it at home. A voyage and adventure, that all the Commanders and compulsions in the world, nor (as I think) ought else save this, could ever have brought them unto, for these good fellows know but little of any other terms.

And by this your Lordship may know their nature, and by that know how to use them.

ADMIRAL. I perceive by this that you would propound it, as a means tending to the cure of their unwillingness to the services of the State they should be allowed some pillage whilst they are in those services.

[CAPTAIN. I would so indeed ; for sure I am that it would not only whet their stomachs to the

employment, but to that fighting also, which belongeth unto it.

ADMIRAL.] But how can this be done without much loss unto his Majesty, whose sole charge and expense it is to furnish out all his ships and fleets, and to pay the company largely and fully at the end of the action, whether it prove successful or no ; whereas in private men-of-war, if no booty be taken, the mariner hath nothing at all.

CAPTAIN. Surely, my Lord, the pillage which I intend (being only that which shall be found betwixt the decks, consisting for the most part of old clothes and cassocks and the like) cannot be of any such considerable value, as to extend to any considerable loss to his Majesty by their pillaging of it. And yet the very noise and hearsay of such a grant shall not only entice them into these services, but make them adventurous and stout in fights, when they come to them. Whereas, otherwise, finding no other task nor feeling save danger and knocks, and that it is all one with them whether they take prizes or take none, they propound it to themselves as the safer course to receive their pays in a whole skin.

ADMIRAL. I confess, it is very likely to be as you say. And therefore I find that in Queen Elizabeth's time, in the taking of any prize, all that was found upon the upper orlop was allowed to be the mariners' and soldiers' ; and considerably parted and shared amongst them by the Admiral or Captain (treasure only above forty shillings in value being excepted). And by way of farther reward and encouragement to the Commanders and officers, I find it was ordered that if any Captain took any gentleman or Captain prisoner, he was to have his ransom and whatsoever else was in the ship, his in peculiar ; but if any private

Captain took any Lord or Admiral prisoner, it was left undetermined whether the prisoner were to be Queen's, or his that take him. The Master likewise of the ship was to have the Master of the enemy's ship to be his prisoner, together with his chests and whatsoever was his in the ship ; as also the second anchor and cable. And the Master-Gunner to have the enemy's Master-Gunner, in the same manner ; and so the Boatswain. This (I say) I find to be the order practised in Queen Elizabeth's time as well concerning pillage as reward.

CAPTAIN. It is true, my Lord, and of late I have seen an order out of the Trinity House which repartited¹ them in this manner ; that the common mariner's apparel, furniture, and the like, taken in any prize was to be allowed for lawful pillage ; and all of it to be brought to the mainmast, and there to be shared, by the Quarter-Masters, the Boatswain, the Master Gunner, and the Master's Mates, every man's share being to be laid out according to the place he served in. The Captain to have nine shares ; the Master, eight ; the Master's Mates, six a-piece ; the Master Gunner, four ; the Midshipmen, five ; the Boatswain, four ; the Quarter-Masters, four ; the Carpenters, four ; the Cooks, four ; the Chirurgeon, four ; the Trumpeters, four ; the under-officers, three a-piece. The which shares thus laid out, the Captain was to put to, or take from, any one share, as he found cause in point of desert. As for those called the dead shares they were referred to the discretion of the share-makers, to lay out so many of them as they should think fit, and they were to be disposed by the Captain to deserving men. And if any officer, or any other man, were slain in the fight, or died in the voyage (provided it were after the prize was taken) they were to have their whole shares due

¹ Divided.

to the place they served in. And by way of reward to the officers, the Captain to have the best piece of ordnance ; the Master, the best anchor and cable ; the Gunner, the second piece of ordnance ; the Boatswain, the main topsail ; the Boatswain's Mate, the fore topsail ; the Master's Mate, the bonnets and spritsails ; the Quarter-Masters, the mizen ; the Coxswain, the top-gallant sails ; the Chirurgeon, the chest and chirurgery ; the Carpenter, all the carpenter's tools ; and the Trumpeters, the trumpets.

ADMIRAL. You see, Captain, that pillage hath been allowed to the common mariner at all times, even in the king's ships, so that in this particular there cannot be any farther discouragement to service of the State than in others of private men-of-war. And, therefore, I believe that the point of discouragement lieth rather in that the King's ships go rarely abroad in way of looking out of purchase, and the meeting with it ; and that when they do, and take anything, the common seamen are more narrowly looked unto, and cannot so well shark and carve for themselves as in private ships, where they live under less command. And because I conceive that this late order out of the Trinity House¹ doth only extend to matter of pillage, what rule have you touching the division of their thirds² ?

¹ I cannot trace this order, but the scheme of distribution given above agrees with that in the ' Ancient Custom in Queen Elizabeth's time ' in the Pepysian MSS.

² A Parliamentary Proclamation of 13 March 1642/3 allowed the King's ships one-third of the value of prizes taken ; and in merchant ships, one-third to the crew, one-third to the owners, and one-third to the State. This was the first occasion on which the grant to the King's ships was regulated at all, and apparently the first time the State's share in a privateer was fixed at one-third. Butler had probably seen the Proclamation before he wrote passage, which only occurs in E.

CAPTAIN. Your Lordship conceives right in respect of this particular ; for this division of pillage may be made at sea, as any prizes are taken ; and perhaps is fittest to be done there in regard of encouragement. And to this end all the pillage is (as abovesaid) to be brought to the mainmast of the ship ; whereas in the point of the thirds it cannot be divided until the end of the voyage, because much wrong may be done to the owners at home, if bulk should be broken at sea, and many jealousies and disputes arise thereupon.

ADMIRAL. Indeed, the main difficulties lie in the keeping of the prize goods entire, and in preserving the hold of the prize ship from being unwarrantably forced by these sharers before the due time.

CAPTAIN. It is certainly therefore a hard matter nowadays for a Commander (be he never so able or honest) to do what he ought to do, and as in former times hath been done in this particular ; such is the extreme irregularity and bold madness of the common mariner and common officer too, in their adventurings this way. So that they will either not serve at all, or have the liberty to do what they list. Nor can I apprehend any cure for this gangrene, but either by interesting the ship's whole company in the particular of the charge and setting out of the ships, and so to let them share with the owners, accordingly as they are interested ; that so they may be induced to the better care of keeping good order, and be the better contented to stay abroad with hard fare, because themselves have promised no better ; or to entertain them upon half-pay, that so the fear of the loss of it at their return may contain them in the better discipline and obedience, whilst they are at sea. And this course may with all reason prove

very prevalent, with all such men as are entertained in private men-of-war. And as for those that in this way are to pass in services of the State, they may the better be held in awe and order by a regular government aboard their ships, and a strict answering of their misdemeanours when they come home. Although I much doubt that many of them are so incurably sick of this pilfering disease, that they will carry it to their graves, if not to the gallows.

ADMIRAL. Well, and there we will leave them. And let us now proceed to your last motive of the common mariners' unwillingness to all State services, which you said was the uncontrolled liberty which they found in merchant voyages, and chiefly in private men-of-war, which they were restrained from in services of State.

CAPTAIN. Truly, my Lord, I must needs say that those severe instructions urged of late, whereby all the Captains serving under the State services have been so peremptory commanded not to suffer any of their men to go to the shore, whilst the ships lay in the harbour or near the shore, which hath sometimes been two or three months together and more, instead of preventing a running away from the service (which was aimed at) produced the quite contrary effect; for the prohibitions being not in possibility to be made good to any purpose by reason of the many shore boats that haunted the ships lying so near the shore, and often stole aboard them in the night, in despite of all care to the contrary, wherein the mariners stole passage to the shore even from their very watches, and being thus gotten thither, and having spent the little money they carried with them, they began (as they grew sober) to be so terrified with an apprehension of the punishment which they

expected to undergo if they returned to the ships from whence they came, that they utterly forsook the service ; so that as many of them as could (and some of these being upon mine own knowledge officers and having two or three months' pay due unto them) conveyed themselves quite away and were no more heard of ; the which had it not been by reason of the over-strict restraint, in all likelihood had not fallen out.

ADMIRAL. And besides, I apprehend another ill that may hereof ensue, which is that the perpetual tying of the common men on ship board, and their feeding them on salt meat with only the diet of the ship, two or three months sometimes, before their going out to sea, must needs prostitute them to much sickness and infection ; and I believe hath been one main occasion of those so extraordinary losses of men, that have lately been found in our sea expeditions.

CAPTAIN. You judge rightly, my Lord, and in these respects I must confess that for mine own part it is mine opinion, that our seamen in general, and especially those which serve in his Majesty's ships upon our narrow seas, should not by any means be farther prohibited from going to the shore whilst the ships lie either in harbour or in the Downs, than only that they be enjoined to acquaint the Captain with their occasions, and to obtain his licence, and in the Captain's absence to do the same to the Lieutenant or Master ; the which may be refused or granted, as shall by them be found fit ; and in which case it will be good caution that some one officer or some such as are most interested in a stay and less suspected to run away be appointed to go with them ; and to take the charge of their return and good behaviour whilst they are ashore. And with this

proviso, I not only think it fit that they should not totally be kept from the shore, but by turns sent to the shore together in some small parties, there to recreate and sport themselves; and thereby preserve themselves from infectious diseases, and be the better able for the service when they come to it.

ADMIRAL. You have spoken fully to those four particulars, which you delivered as main motives of the common seaman's distaste of all State employments; and I also well approve of the ways you have propounded for the redresses. But you know withal, that the insolencies of these men are so overgrown of late as upon every slight occasion they have nothing more ready in their mouths than that mutinous sea cry, "One and All"; and on the shore you have seen some of them affronting Justice in the very High Streets of the City.¹ Nay, at the very Court itself they have been in tumults and outcries; so that it may be doubted that your prescriptions are too levative to work thoroughly upon such surly natured patients, whose diseases seem to be somewhat inveterate.

CAPTAIN. Indeed these late times have produced unusual and new distempers of this kind, and I am persuaded that they have been rather fuelled than quenched by an over indulgency, in that these men have found their tumultuous clamours and demands answered and satisfied by this rude (or rather rebellious) course of seeking them; a precedent that may be doubted of worse consequence than hitherto hath been felt; unless it shall be seasonably looked unto, whensoever the like occasions shall again be offered. For it is

¹ This paragraph was first drafted in 1634; no doubt it refers to the troubles of 1627.

certain that no right or due whatsoever is either to be given or gotten the wrong way. And surely, whosoever they be that would make the world believe that either seamen or soldiers may be orderly governed, without the terror and use of martial law (the which when regularly practised is fully as equal as any other way of trial whatsoever, and perhaps more moderate than some) either do it, for some by-end to delude the world, or seem to me to have but little understanding of the condition of a war, or the nature of soldiers and especially mariners.

ADMIRAL. You hold right, so that perhaps this cure will scarce be perfected without some corrosives.

CAPTAIN. If not, there are some severe penal prohibitions to be proclaimed against our seamen serving abroad, with any foreign State, unless punctually and particularly licensed; and such punishments inflicted as have been warranted and imposed upon all such as, having been impressed into the Prince's services, and have taken or been offered his imprest monies, have dared either to run out of them or to hide themselves from them; or shall not punctually appear at the appointed places and times of rendezvous. The like punishment may also be inflicted upon all such (whether natives or strangers) as shall presume to entertain any seamen, much more to hide and entice them away from the services of the State after they have been imprest into them. And for the looking into all delinquencies of this nature, it hath been and is the opinion of some men that it were requisite that some of the most ancient and ablest Captains, who have commanded in his Majesty's royal ships, should be always commissioned to this purpose, and have power and authority to call in

unto their assistance any such of his Majesty's officers as may soonest and with most opportunity be had, in any of those parts where any of these kind of delinquents shall be found. That so due punishment may be inflicted upon them, whosoever and wheresoever they be. And that these Captains thus commissioned, to the intent they might be the better known, should at all times wear some certain coloured riband about their neck, or carry a distinguishing truncheon in their hands, or both. The which they, and none but they, should be admitted to wear or carry.

ADMIRAL. I dissent not from you in any of these particulars ; and as touching that of the thus commissioned Captains, I assure myself it would much conduce not only to a due respect towards them from seamen in general, but likewise to the reduction of these libertines of our age, to their old (Queen Elizabeth) obedience and discipline ; or at the least, leave them to the sufferance of deserved punishment without all excuse or escape. For there can be no colour of exception taken to that government that works with both hands *et præmio et poena*, neither can any government be just or prevalent ¹ without them.

But Captain, before we leave this subject of our present discourse, I would have you propound some such ways and courses as in your apprehension may best conduce to the better breeding and supply of able seamen and mariners amongst us ; for I have heard some say and lament that there is at the present an unwonted scarcity of such, and that as well in respect of sufficiency as number.

CAPTAIN. Whether there be any such scarcity or no, I shall not determine ; but sure I am, most necessary it is by all means to cherish an increase

¹ *I.e.* potent.

this way. And it is not to be gainsaid but that every trading upon the water may be received in their several degrees, as seminaries tending to the augmentation and breed of seamen ; so that the very rowing in our wherries between London Bridge and Westminster maketh expert oarsmen, and this is one step (though the lowest) towards the attainment of this mystery. And therefore I hold it a good providence that in all sea services some numbers of these fresh-water seamen be used and employed ; and that our merchant men should be enjoined to entertain some certain number of them aboard their ship in all their voyages ; that so they may have means to improve their abilities this way.

ADMIRAL. You advise well ; for though these men at the first push be not to be relied upon in point of navigation, yet being strong and stout men many of them, and generally very expert oarsmen, they may do good service by rowing in their ship boats ; and besides the very air of the water and the motion thereof, must needs make them to be sooner seamen than others that are not at all acquainted that way ; though but considered in the particulars of sea legs and sea stomachs.

CAPTAIN. A second nursery tending to the breeding of seamen I find amongst our small fisher boats used in our creeks and rivers, close by the shores. And these may be admitted into a form above the common wherry-men. For besides their sea legs and sea stomachs, which they have very perfect, they have some few ropes and sails to handle, and some grapnels to ride by. And passing well foresighted they are, of sudden gusts, flaws of wind and all changes of weather ; and therefore may well be made use of at sea ; and ought to be drawn out that way, that so they may be inured to live out of sight of land ; and to

learn new ropes and new sails, and be taught an increase of sea language, and to know and steer by the compass. And to all these particulars they will sooner attain by one degree than the former freshwater rowers; and therefore are to be encouraged in the profession, and preferred in all their rights.

ADMIRAL. It were pity but that they should, and fit withal that they should, be invited to go abroad to sea; for many of these poor fishermen, by a convenient practice, would in a short time prove very sufficient mariners.

CAPTAIN. A third rank of sea scholars are to be found amongst those bolder fishermen who not only dare lay the shores (as our sea phrase is), and fish out of sight of land, but sail into Ireland for herring, nay adventure upon the coasts of America as far as the Bank.¹ And these, as they are bolder men so they have bigger vessels, with all the ropes, sails, masts, and yards that belong to a tall ship, and thereby become thoroughly acquainted with every inch of them, and readily find out them and manage. They can also take their turn at the helm and steer their course, so that with a little larger experience they will grow up to be stout and perfect seamen, and fit for any employment of that nature. These, therefore, are to be respected and cherished in their ways and tradings, which may providently be done by courses tending to the vent of their fish when they bring it home; and to this purpose his Majesty's Proclamations for the due observation of Lent and fasting days do properly conduce and are foolishly stumbled at. And whensoever our wonted fishing with Busses upon all our coasts shall be resumed, it must doubtless be one main means to enlarge their number and

¹ Of Newfoundland.

to encourage them, and so to breed a seminary of sailors and good seamen, even by this very way.

ADMIRAL. I am very confident of it ; and truly were there nothing else but this, yet it were a work of high regard, and no doubt but may both requite and require the noblest adventurers.

CAPTAIN. A fourth course to breed sailors amongst us, and of especial note, is by our Newcastle Colliers ; who though they be but coasters yet by use and employing of many ships, and some of them good ones, and by finding occasions enough on our northern seas, and chiefly in their winter passages, to put them to the best of their skill and practice, prove not only good seamen, but a great seed-plot of seamen ; and by a few enlarged voyages, growing acquainted with the alteration of climate and the difference of currents, and several blowings of winds, grow up to be accomplished navigators and send out from among them some such officers as are able to take charge in the most of merchant voyages. So that this coal-carrying course is to be well protected from enemies in time of war, and pirates in time of peace ; and that not only for fuel and good fire sake at London which cannot long last with[out] it, but likewise for the maintenance of good shipping and the multiplication of good mariners.

ADMIRAL. There is no doubt but that this trade operateth well both ways, and it were to be wished that these colliers would be won to a manning of their ships more sufficiently than (for thrift sake) they usually do. For I believe that many of their ships are yearly lost for want of hands, and that with a loss to the Commonwealth as well as to themselves.

CAPTAIN. Questionless the overslack manning

out of ships to sea, especially in long voyages, proveth the wreck of many of them ; and therefore it is to be held a perilous and foolish thrift even amongst merchantmen, in times of peace, and at all times with action of men-of-war, where there are so many occasions to use many hands. For I see not but that the biggest vessel that swims, especially if she be open built (of which we shall have occasion to speak more hereafter) may in a fight be wronged, and taken too, by an enemy ship not half so great nor good as herself that shall in any reasonable manner overtop her with men. For what shall hinder this smaller vessel from laying the big one aboard whensoever she gets the better of the wind ; and being aboard her, how can it be helped (unless the great ship be extraordinarily fitted for a close fight), but that by being more numerous and strong in men, she may enter as many of them as she will in some one part or other of the ship she lies aboard, in spite of all disadvantage and all opposition. This (I say) may well be effected whensoever any great ship much undermanned shall be assaulted and boarded by a small ship, that carrieth more hands than she ; unless, as aforesaid, this great ship be thoroughly fitted and armed with decks, bulk-heads, and the like means requirable for a defensive fight. For though it be true, as Sir Walter Rawleigh saith in his History of the World, lib. 5th, fol. 350, that it belongeth rather to a madman than to a man of war to clap ships together without any consideration. Yet in the case now propounded I would fain know by what visible way this great ship can be so kept from the small one, but that by overbearing her with men and multitude she shall also be over-mastered, for all her big looks. But of this more shall be said when we

come to discourse of the choice and building of the best ships of war.

ADMIRAL. Since we are fallen upon the point of manning of ships, let me know [before we proceed further in the seminaries of our seamen] whether there be not some rules of proportion for the due and sufficient manning of ships when they are to go abroad to sea.

CAPTAIN. I have heard of some such ; as that some would have this proportion to be taken and made considerably to the number and quality of the great guns that the ship is to carry, with an answerable allowance of spare hands for that management of the sails. Others apprehend the rule of proportion will hold truer, with a relation to the burthen of the ship ; as that in all ships from forty tons of burthen to four hundred there be an allowance of one man to every four tons ; and so a ship of four hundred tons in burthen to be manned with one hundred men, and so rateably downwards ; and upwards from four hundred tons they appoint one man to every three tons. And then a ship of six hundred tons in burthen shall be manned with two hundred men, and so upwards.

But for my part I cannot find how this computation can be brought within the compass of any certainty ; but must be varied and regulated, according to the length or shortness of the several voyages that the ships are designed for, and also with a respect to the kinds of services and occasions that they are to be employed in. For who knows not but that for a short voyage (especially being a merchant one, and in times of peace), a shorter number of men may serve turn, than for a longer, where it may with all reason be expected that the length of time, and mutations of climates, may occasion some extraordinary mortality. And

so likewise in employments in ships of war, when an enemy is looked for and where blows are to be given and taken, there is in all reason a larger number of men to be provided aboard than where there is nothing but a voyage of peace and ease to be expected. But of this more shall be said hereafter.

ADMIRAL. Surely mere reason compels a full consent to you in this. I pray now return to our sea seminaries, of which we have already particularised in four.

CAPTAIN. A fifth way and a very remarkable one of breeding of seamen amongst us is in our merchant voyages, and that as well of ships as shipmen. And here though they can hardly be bred perfect sea soldiers, yet they prove accomplished mariners and navigators; and be very sufficiently enabled for all manner of services in this kind. And therefore (though it were for nothing else) are merchant voyages to be carefully protected and made much of; and especially such of them as are designed for the bottom of those Straits one way, and for the Sound, and the Eastern countries another way. For as touching those tedious travels which require a double doubling of the great Cape of Good Hope, I shall make it a query whether they make or mar mariners most, I mean whether there be not as many good seamen lost by the length of the voyage and the often alteration of the air and changing of climates as gotten by the practice and experience.

ADMIRAL. And for my part I shall demur with you upon it also. And yet I have read some discourses touching this particular, and heard some disputes also, *pro et contra*, but without satisfaction. But go on with your sea nurseries.

CAPTAIN. The sixth way of making of mariners is by the services in ships of war and especially in his Majesty's ships, and fleets royal ; and most especially during the time of a war. For herein they may not only attain to whatsoever can be taught in any of the former schools, but to an addition of being as well sea soldiers as seamen. Here they may learn discipline and obedience ; the use of their arms, and chiefly of the fiery weapons, the skill of the Sea Gunner's Art, which is different from that on the shore in many particulars ; the most opportune and useful forms to be practised in the divisions and sailings of fleets, in regard of comeliness, keeping together, due rendezvous and meeting again upon any separation ; the advantages that are to be gained and may be lost in all manner of assaults and chases ; the best ways of helps and working in all sea battles and sea fights ; the safest and fittest forms to be practised in those fights upon all occasions, parts and places ; the surest and most probable ways for all fleets, either to offend another, or secure themselves if they be put unto it in any road or harbour, whether it be friend or enemy ; the rules and observations requirable in all boardings ; the ways how to discern and discover when it is fit to board an enemy's ship, when not ; with many the like necessary observations ; whereof we shall speak at large when we come to treat of sea fights in general.

[But because it is neither to be hoped for, nor wished after, that any war should be immortal whereby experiences in all these kinds might be attained unto (though true it is that hereby the Spanish Monarchy and the States of the Low Countries by their continual and lasting wars have gotten a great advancement of sea strength as well as of land). It is therefore an act becoming

a wise and provident State ever in a constant hopeful peace, that all these six general nurseries of seamen formerly set down should be well fenced, duly watered, and orderly manured in their several kinds and stations ; that so they may jointly produce such fruits and increase as may be contentful and to the wish of all true English hearts ; and prove profitable to the whole Britain Empire.

ADMIRAL. I wish it may do so. And with much thanks I bid you farewell, until the morrow.]

DIALOGUE THE THIRD

About the Victualling Out of Ships and Fleets

ADMIRAL. Let the subject of this third day's conference betwixt us be concerning the victualling out of ships and fleets. And in the first place I would be satisfied by you (for you must needs know it if there hath been any such matter, having been a Commander in all our late actions abroad) whether that so great and general a cry, as well against the quantity as quality of sea victual hath been deservedly or not.

CAPTAIN. I must need say, my Lord, that I have not heard only as much, but have had my share of the trouble and ill thereof ; for the common seaman finding himself never so little aggrieved in this kind ; and missing the victualler to be revenged of (who commonly is far enough out of the way when these kinds of trials are most in agitation), he takes his next course, either to the Purser, the Master, or the Captain himself, if he chance to appear first in sight, and vents his clamour and spleen amongst them and many times against them, as if either they were in the fault, or could redress it.

ADMIRAL. But how comes there to be any fault in this kind, for as touching the quantity of the victual, I have heard it generally and confidently spoken that there is no Prince or State that maketh

so large an allowance of victuals to seamen, as his Majesty doth ? Whence is it therefore that there hath been such complaining of late in this kind ?

CAPTAIN. It is true, that as well in victual as wages, our English proportions are very transcendent, and in the particular of victual, especially bread, it is more than can be eaten. But the ground of this late complaint hath been in that the common seamen have conceived themselves to be defrauded of that quantity, the which they well knew was allowed them by the State, and which the State paid for.

ADMIRAL. But upon due examination, have you found this at any time to be true ?

CAPTAIN. I must needs say that in our late, and especially latest, voyages I have more than once found sometimes twenty, sometimes thirty of the common mariners of the king's ship that I then commanded waiting at my cabin door at a dinner time, with their beef and pork in their hands, to let me see how small the pieces were, and how much under the quantity and weight proportioned. And this indeed I plainly found to be true ; but could not redress the abuse, nor right them at that present by reason that every cask and hogshead being to have in them so many pieces of beef or pork, and every piece to be of such a weight ; if I should have made up the full of the due weight that was to have been to every particular man, for the quantity of their meals by an addition of some pieces, it must of necessity have fallen out that the general proportion in the gross, which was to serve so many men for so many months, would have failed long before the limited time of service abroad had expired. The which might have hazarded a general starving of all the ship's company.

ADMIRAL. It seems, then, that the due and

full quantity of victuals allowed by the State for the ship's company and taken to have been in the ship's hold for the prefixed time of service abroad, was not indeed brought into the ship ; for though there were the full number of pieces of beef and pork yet was there a want in weight and quantity. The which was a foul cosenage and desperate abuse and might indeed (as you said) have occasioned a general ruin, as certainly it did a general wrong.

CAPTAIN. It might so, and yet the abuse proceed from some inferior officers, as the butchers and cutters out of the flesh, or from some other particular under-victualler ; or perhaps from the ill choice of the beasts, as being lean or old, whereby the flesh might shrink in the salting and seething ; rather than from the prime and general victualler, who I persuade myself was far from the guilt of so unworthy and base a cheat.

ADMIRAL. Wheresoever the guilt was, sure I am that the redress is of absolute necessity. But what say you to the quality of the victual in respect of goodness, and badness ?

CAPTAIN. Truly touching this also, I must needs say, that there hath been found very ill dealing ; and that not only in the provisions of flesh (which perhaps might be in part excused by the unreasonableness of the time that they were of necessity to be made in, being in the prime heat of a summer when flesh in these parts will not well take salt), but in the rottenness of the cheese, in the frowsiness and foul condition of the butter, and in the badness of the salted fish [the which sorts of victual cannot admit of any the like excuses]. And for the beer, it was not only for the most part very undrinkable (whether by bad brewing, or the ill-seasoning of the cask, I cannot say), but a great deal thereof absolutely lost by a new device of

petty saving in not affording some iron bound cask for the lower tier of hogsheads; so that in the King's ship that myself commanded, in Rochelle voyage (and I assure myself that I suffered not single in this way) when we were to make use of that beer, which for our last refuge had been lodged in our ballast, we found seventeen tuns of it leaked out end for end. And this fell out by the only want of a few iron hoops; so that we were all of us put to the drinking of stinking infectious water for fourteen days together; the which had it lasted with us but as long again (as in all likelihood it might have done, and but for a very extraordinary fair wind causing as extraordinary a short voyage, it certainly had done), it could not but have occasioned so mortal an infection amongst our men as must have endangered both men and ship.

ADMIRAL. Surely these kinds of good husbandry may fall within the compass of any common capacities and the projectors are only to be held in the rank of Common Councillors. But upon your mentioning here of your drinking of stinking and infectious water, I am put in mind of a report, which is that salt sea water may be artificially made fresh; the which if it may be done were well deserving the knowledge and learning, and might by the practice in cases of extremity in this kind save some lives.

CAPTAIN. This report is not altogether novel, for Aristotle hath thus much of it; that if an empty vessel close sealed up with wax be by art forced to sink under water in the sea, and so forced to lie some term of time, it will be found filled with fresh water, the salt water becoming fresh by piercing in through the pores of the wax, and leaving its saltness and unsavouriness by the way;

when I collect¹ upon the same ground that if sea water shall be drained through tubs, half filled with that kind of small sand which lieth upon the sea bays, in the same manner as the saltpetre-men use to do in their operations, that this salt water, after some few changes of sand, shall become fresh. And I can speak thus much of this by experience; that our English colony in the Bermudas have all the water that they drink (which is exceeding good and sweet) out of wells, which they dig upon sandy bays, close by the sea-side; and that all the water in these wells, is only sea water, made savoury by draining through the sand. And to evidence the certainty of this, all these wells do constantly ebb and flow as the sea doth; and myself in a long time of drought being there did pass through a small valley, which I found as dry as a house floor, and within two or three hours after returning back I found in the very same place a large splash of fresh water (not one drop of rain having fallen from the clouds), which could not but come from the sea through the pores of the earth, which was a sand; the part being lower than the high water mark at a full sea, upon a spring tide; some small hills interposing between the sea and it. And for a farther proof that salt water may by art be made fresh I find in one of our modern writers that sea water being boiled doth evaporate a dewy and watery substance and humour, the which being collected and kept together proves sweet and savoury. The which effect no doubt upon the distillation and limbecking thereof, will prove perfect and accomplished; and so enlarged as may serve of very great use, in cases of extremity of this nature. And therefore I could wish that all ships that are designed abroad to long voyages over large seas

¹ Infer.

should be furnished with utensils proper to this purpose.

ADMIRAL. I very well approve of what you say and advise touching this particular. But, Captain, it were withal fully as necessary to prescribe some ways of cure for the future of this dangerous and bad victualling out of our ships and fleets.

CAPTAIN. My Lord, if, as some hold (being men of judgment also), the general victualling out of our fleet be a work over vast to pass under the care and management of one only victualler (be he never so diligent, sufficient, and well credited), who of necessity must entrust divers and sundry deputies in several ports and parts, being creatures for the most part no farther interested nor true than to their own ends ; why may it not be received for a more sure and proper way that (after the manner of other States), the Captain of every ship together with the Purser and Master, having the same allowance from the State that the victualler now hath, should have committed to their charge the victualling out of their particular ships, and company, in which and with whom they in their persons are to go and share ; and that to such a quantity, such quality, and by such a time, as they are to stand answerable for upon their perils.

ADMIRAL. I find no reasonable exception against it, unless it be pretended that it will trench too far upon the office of the Royal victualler.

CAPTAIN. If so, then give me leave to say that this officer must order that there be providently and seasonably furnished sufficient magazines of all kinds of provisions, in all such several parts and ports as lie most convenient and proper for all services, to which end timely warnings must be given him, that so all such ships as are to make up

the main body of the fleet at any time may accordingly receive instructions to take in their provisions of victuals in such places as lie nearest unto them ; and so to make their repairs to the general rendezvous appointed for the whole fleet by the time appointed.

ADMIRAL. This proposition deserves to be thoroughly taken into consideration, for it may be feared that unless some courses of redress be practised some further mischiefs may ensue by reason hereof. But withal there is another inconsiderable practice as full of danger and improvidence as that can be, which is the over pestering of ships with soldiers and passengers, and especially when they are to pass upon long voyages, into hot countries ; for though the allowance of tonnage for every passenger, with his person and provisions, may be considered, according to the length or shortness of the voyage in hand, thus far, that in short voyages to be made in few days, one ton or one ton and a half of shipping may be thought sufficient for every head, and the stowing of his victuals and stuff ; yet in voyages of length, especially to the southwards, I shall never advise a less allowance in proportion of room, than of two ton for every man ; and especially if they be mere landmen, unused to the sea, who through their seasicknesses and nastiness procure many infectious diseases as well to themselves as all that sail with them.

[And truly we have already escaped very narrowly, for in our last action to Cales,¹ the most of our best ships were in eminent danger to be lost at sea, through the want of hands to manage their sails in a winter return home, so exceeding great was the infection and death of our seamen in

¹ The expedition to Cadiz in 1625.

that so short a voyage ; and this infection was thought mainly to proceed from the unwholesomeness of our victuals in general.

CAPTAIN. It is not to be denied but that the hardness of our victuals might be one original cause hereof. But withal two other improvidences concurred to the setting of it forward, which were that the ships in general were extraordinarily pestered with land soldiers ; and that there were no hospital ships appointed for the fleet, at least, not until it was too late, that so the sick and infected might have been separated from the sound.

ADMIRAL. As for the pestering of the ships, I cannot see how it was to be helped, considering that there were so many land men to be transported in so few ships, besides the necessary seamen.]

CAPTAIN. Your Lordship judgeth rightly, and, therefore, whenever a necessity enforceth it, an especial care and strict order is to be taken that those ships are not only to be kept clean and washed every day, and that (if it may possibly be) with vinegar mixed with water ; and withal that some perfumes of tar and the like be often burned betwixt the decks, where these passengers¹ sleep ; but the Boatswain and Quarter-Masters of every ship be enjoined to cause the landmen to keep above the decks and in the open air in all fair weather in the daytime ; and when it is foul and raining, that they be held below betwixt the decks, that so they may keep their clothes dry ; for there is nothing more unwholesome at sea than to sleep in wet clothes, the which being once wet these soldiers must needs undergo, for they have seldom any shift to change withal.

¹ The soldiers.

And to the end that the soldiers may upon all occasions be the better governed on ship board whilst their own officers (being as sick as themselves, and perhaps by reason thereof as foolishly unruly) cannot do it as it should be done, it were to be wished that the Sea Captains (for that time) have a full power to command them, and be commissioned to that purpose for otherwise many dangerous contentions may fall out betwixt them, which by this means may be avoided and if it should fall out that any of these land commanders should happen to die in the voyage, their soldiers being left destitute of commanders, there must needs ensue many perilous disorders,¹ and especially when these landmen do much overtop the seamen. It being generally known that land soldiers are not only impatient of sea sufferings, but withal very much given to mutinies, and violent distempers against seamen upon the least sense of hardship [the which with them is more intolerable and of greater provocation than with the practised seaman, with whom it is familiar at sea.]

ADMIRAL. Nor need this be received in any ill sense by the Land Commanders, for if they be but rationally temperate, they will rather wish for an Adjutant in such a time and place, when themselves may expect to be disabled by sickness or otherwise, than be any way discontented or repugnant. But Captain, have you not in all great fleets, certain ships appointed for the receipt of your sick people, which you call hospital ships?

CAPTAIN. Yes. And there is nothing more necessary than that every squadron of such fleets should be very sufficiently furnished with them;

¹ Butler is thinking of his return from Cadiz in the winter of 1625. *Vide* Introduction, p. xiii.

and that these ships be appointed and known before the fleet puts out to sea, and that they be fitted with convenient cabins, for the receipt of sick people, and every ship provided with an able Chirurgeon with his Mate, to be continually resident aboard, who is to have his chest every way well furnished ; that so as any person, either common man or common officer shall happen to fall sick, and especially of a sickness known or suspected to be infectious and contagious in any ship of the squadron, he may be speedily and with the first opportunity removed and received into that hospital ship which is appointed for it ; whereby the sick may not only be separated from the sound, but likewise be the better lodged and looked unto by the Chirurgeon.

ADMIRAL. This is a provision as well pious and provident. But Captain, you forgot to mention this so necessary an officer at sea, the Chirurgeon, when in your first day's discourse you gave in the catalogue of your sea officers.

CAPTAIN. By your favour, my Lord, no. For as well this officer as the Minister (whereof every great ship of his Majesty's is allowed to have one, with a good competency of pay) were then purposely omitted (although both of them as fully necessary in their places as any of the rest), partly in that their functions and charges are everywhere known, and partly because that these are not officers peculiar to the sea, as all the rest forementioned are.

ADMIRAL. Well, let us now return to our victualling business, wherein there is one point more that you must satisfy me in : whether it were not more beneficial, and more for the health of our seamen, that the main of our victualling were somewhat altered in respect of the kinds thereof,

and nearer fitted to the manner of some foreign nations ; rather than, as at the present with us, to consist of so much of salt meats as powdered¹ beef, powdered pork, salt fish, and the like.

CAPTAIN. Without doubt, our over-much feeding upon these salt meats at sea cannot but procure much unhealthfulness and great infection, and is certainly one main cause that our English are nowadays so subject to calentures² and the like contagious sickness above all other nations. And indeed the only seething of our meat in salt sea water causeth many sea diseases and especially the scorbutic ; and therefore is as much as may be to be avoided, so that it were to be wished that we did more conform ourselves to the Spanish and Italian nations, who on ship board (and at land, too) live most upon rice, oatmeal, biscuits, figs, olives, oil and the like ; or at the least to our neighbours the French and Dutch, who content themselves with a far less portion of flesh and fish than we do, and instead thereof do make up their meals with peas, beans, wheat, [flour] butter, cheese, and those white meats as they are called.

ADMIRAL. It were well indeed if we would bring ourselves to this provident and wholesome kind of sea feeding. But the difficulty consisteth in that our common seamen are so besotted in their beef and pork that they had rather adventure on all the calentures and scurvies in the world than to be weaned from their customary diet, or lose the least bit of it. So that it may be doubted that any alteration this way would put them to a running away from the services of State as much as anything else whatsoever.

CAPTAIN. I confess that it is no easy matter

¹ Preserved ; probably by sprinkling with salt and spices.

² Fevers.

by any new reason to take off these kind of men ¹ from an old custom ; and yet would they but patiently consider of the lusty subsistence of the Italian, Spanish, and Dutch Nations, who by this diet live far more healthily at sea than we do, or but of our own Colonies at St. Christophers, the Barbadoes, Virginia, and the Bermudas, who for the most part live and thrive well with these husked de-hominie ² or loblolly, as they term it, the which they make of the West Indian corn called maize, it would work them (methinks) to some conformity ; and if not, it is fit that they should be served like little children or peevish patients, and be made to keep a good diet whether they will or not.

But, howsoever, sure I am that this maize is an excellent sea food, and most proper for long voyages at sea ; for as it may be ordered it will keep extraordinarily and withal is very nourishing and healthful. And so likewise are those various kinds of peas, which are everywhere found in the West Indies (whereof some of them grow upon trees). As also their cassada,³ pomprians,⁴ potatoes, plantains, oranges, lemons, limes, pines ; which are excellent against the scorbute ; ⁵ so that the Dutch men-of-war, which yearly haunt all those coasts, do continually maintain themselves, with victual and health with these provisions for many months and years together, until they have made a voyage upon their enemy's coast. And as for English, which keep in these parts, in lieu of their beloved beef and pork, they have found out the salting of

¹ ' Lads ' in the earlier MSS.

² Hominy : maize ground and prepared for food by boiling in milk and water.

³ Cassava prepared from the tuberous roots of the mandioc.

⁴ Pumpkins.

⁵ Scurvy.

tortoises or turtles (as they call them) ; so that such of them as go abroad for men of war do make it the main of their victualling, when they are homewards bound, and find it very lasting, gustful and wholesome ; and so much I can say of it upon my own experience. And one especial place where they find these turtles is at the islands called the Mosquitos ; which lie to the north-west of the Isle of Providence or Catalina, and twenty-six leagues distant. At the island also called the Caimans abundance of turtles are to be had ; of which, as well the Dutch as English, which haunt the coasts of Cuba, Hispaniola, and Jamaica, make great use ; as likewise of the great store of beeves, which run wild upon all these islands, and are easily killed.

ADMIRAL. But this is little or nothing touching our victualling here, which is the point we chiefly intend ; for these commodities grow not here, nor are here to be had in any considerable quantity.

CAPTAIN. I know well that these northern climates produce not these kinds of grain nor fruits ; for neither the heats of our summers, nor the strength of our soil will mature or bear them ; and therefore are not propounded as provisions of victuals for ships outward bound, but to intimate thus much : that whensoever we shall have occasion to look abroad towards the West Indies with any of our fleets, that then these sorts of food may be made use of to very good purpose ; and that either whilst they stay there or when they make homewards. Especially if our Colonies there shall be instructed to employ themselves (rather than as at the present upon smoky tobacco) in planting and storing up these kinds of commodities ; that so they may be ready in an abundance thereof for all such fleets and ships of ours

as shall be thither designed, and by them to be taken off at reasonable rates, with such needful merchandizes, as are most requirable for the necessities of these Colonies.

[And as for the Islands of the Bermudas or Somer Islands, give me leave to assure your Lordship (as one that well knoweth them, and shall be ready to demonstrate it evidently) that in regard of their natural strength the safety and fitness of their harbours, their most opportune situation, their salubrity and their wonderful production, they are the most advantageous piece of earth, not only within his Majesty's dominions but of all those parts, for to be made use of in all those western employments at sea, and in that regard do well deserve both to be cherished and well looked unto.

ADMIRAL. Well Captain, I will trouble you no longer at this time, but shall expect you here betimes to-morrow ; for we shall have a long task to execute.]

DIALOGUE THE FOURTH

Shewing the Appellations of all the Parts belonging to a Ship of War, and the Words of Art used by Seamen.

ADMIRAL. Our discourse of this day shall tend for the understanding of the proper appellations of all parts and pieces of a ship of war ; with all the words of art belonging to navigation, and of command in all fights, chases, boardings, in all weathers upon all occasions.

CAPTAIN. Although this task may suit better, and for the most part more properly, with a ship carpenter than a sea Captain, and that a very ship boy can do it as well as either of them ; yet in regard it will much conduce to the clearer understanding of whatsoever hath been spoken formerly, and especially of that which is to be said hereafter, when we come to treat of the best ships of war and of the bringing of them into action ; I shall not only use mine own memory but the best helps of my memory to give a satisfaction, and I will begin with that part and main body of a ship which is termed the **Hull**, and so from the general to the particulars ; and from those below to those upwards by degrees.

Now this hull is the main body or bulk of a ship, when it is without masts, yards, ropes, and sails.

ADMIRAL. What mean you then by your sea word **hulling**, and by saying the ship hulls well?

CAPTAIN. When at sea by reason of foul weather and overblowing, or some other occasion they take in all the sails of a ship so that nothing but her masts, yards, and rigging are abroad, she is said to lie hulling, or to hull. And this is done sometimes in dead calms, to preserve her sails from beating (and so spoiling) against the masts when the wind is down but not the sea, and sometimes in foul and over blowing weather (as aforesaid) when a ship is not able to bear any sail abroad by reason of the violence of the storm. And when the ship lying in this order, rolls or tumbles not overmuch, she is said to hull well.

ADMIRAL. To observe your propounded method you are in the next place to tell me what you call that piece of timber which lieth lowest in the hull of the ship.

CAPTAIN. It is termed the **Keel**, and it is the basis and groundwork whereon all the rest of her parts and pieces are fastened. And the fore-end thereof is called the stem of the ship, and the hindermost end the stern. And to this keel are bolted, that is, made fast with iron bolts, those pieces of timber called **Ground Timbers**, and **Hooks**; and on them all the upper works of the ship are raised. And when a ship hath a deep or broad keel, she is said in sea language to have a rank keel, and this manner of keel preserves a ship from over rolling: so that when a ship rolls too much by her being over floaty, a second keel is sometimes put under the first and this is termed a false keel.

ADMIRAL. How term you the second piece of timber in the hull of a ship?

CAPTAIN. It is that which lieth directly over the

keel and it is named the **Keelson** ; between which keelson and the keel there runneth a rope from one end to the other termed the **Keel-rope**. And the use of this rope is to clear the limber holes, when they are choked, that is stopped with the ballast or any the like thing.

ADMIRAL. Before you tell me what these limber holes be, let me know what name you give to the first plank that is fastened upon the keel.

CAPTAIN. It is called the **Garboard Plank** ; and the **Garboard Strake** is the first seam in the ship that is next unto the keel.

ADMIRAL. Now let me understand what your **Limber Holes** are, and to what use they serve.

CAPTAIN. They are small square holes, cut out in the bottom of all the ground timbers, and hooks, next unto the keel and right over it [being about three or four inches in the whole square]. And their use is to let the water pass to the well of the pump, the which otherwise would rest betwixt those timbers into which the keel-rope is put.

ADMIRAL. Of what kinds and fashions are your sea **Pumps** ?

CAPTAIN. Of these there are three sorts. The first and the most ordinary are wholly like to those used on the shore, and these stand by the main mast. The second sort of pumps are those termed **Burr-pumps** ; and are seldom found in any of our English ships, but are very common with the Dutch, and they have them in their ship sides, and call them **Bilge-pumps** ; for their ships being for the most part built with broad flat floors do hereby hold much bilge water, that is to say, water which cannot come to the well in the ship's hold by reason of the breadth of the bilge, that is, the flatness of the bottom of their ships' floors. And the fashion of these pumps is to have a staff, six or

seven feet long, at the end whereof is a burr of wood where the leather is nailed. And this serveth instead of the box ; and so the men that pump, standing right over the pumps, thrust down the staff, unto the midst whereof is seized a rope long enough for six or eight or ten men to hale by ; and thus pulling it up they draw up the water with it. And this kind of pump doth deliver far more water than the former, and is not so laborious in the use. The third kind of sea pumps, and indeed the best, are those called **Chain-pumps** ; for these deliver most water of any others, and that with most ease, and withal are the soonest repaired, when they are any way in decay and out of trim. And these pumps have a chain of burrs going in a wheel, from which chain they have their name.

As for the sea term, in the using of these pumps, and of all the rest, it is said the pump sucks, when all the water is pumped out of the hold. Now the appurtenances belonging to these pumps are the **Pump-brake**, which is the handle whereby they pump ; the **Pump-can**, and this is a large can, wherewith they pour water into the pump when they intend to use it ; the **Pump-dale**, which is the trough wherein the water that is pumped out runs alongst the ship's sides, and so out at the **Scupper holes**. And these are holes made through the ship's sides close to the decks, and through them this water runs into the sea. And those scupper holes that are made through the lowest decks have round long leathers nailed over them, whereby the water without is hindered from entering by these holes into the ship ; and yet the water within the ship findeth a passage to issue out by them, and so into the sea. And those short nails with broad heads, wherewith these

scupper leathers are made fast, are termed the scupper nails.

ADMIRAL. For method's sake return to the groundworks of your ship.

CAPTAIN. Of the ground timbers we spoke before, the which are so called by reason that the ship doth rest upon them, when she lies aground. And those timbers, which lie fore and aft (that is before and behind) in the very bottom of a ship, just as the rung-heads go, are named the **Sleepers** ; and the lowermost of these is bolted to the rung-heads ; and the uppermost unto the futtocks and the rungs, and these line out and describe the narrowing of the ship's floors.

ADMIRAL. What are these **Rungs** and **Rung-heads** ?

CAPTAIN. The rungs are timbers which give the floor of the ship ; and they be bolted to the keel. The rung-heads are the ends of these rungs, and these are made somewhat compassing, and do direct the sleepers, that is the mould of the futtocks ; for in the rung-heads the lines which give the compass and bearing of the ship do begin. And those hooks placed on the keel are named **Rising timbers** because, according to the rising by degrees of these hooks, the **Rake** of the ship (that is, so much of the ship's hull as overhangs both the ends of her keel above water ; the forepart whereof is called the rake forward on, and the other, which is at the setting on of the stern post, is termed the rake aftward on) and the **Run** (that is that part of the ship's hull which is under water) do rise also by degrees from her flat floor. And those pieces of timber there, which resemble a man's leg and thigh when the knee is bowed, are called the **Knees** ; and these serve to bind the beams and the futtocks together, being fast bolted unto them both.

ADMIRAL. And what are these **Beams**, and **Futtocks**?

CAPTAIN. The beams are those main cross timbers which hold the sides of the ship from falling together, in the nature of the beams of a house; and withal (as those beams in a house) do bear the floors, so they the decks and the orlops. And the main beam lies next to the mainmast and from it the other beams are reckoned and distinguished by the first, second, and third beam. And the great beam of all is named the midship beam. As for the futtocks they are those compassing timbers which make the breadth of the ship. And those below next the keel are termed the ground futtocks; the other aloft, the upper futtocks. And the spare space betwixt the futtocks and the rungs by the ship's sides fore and aft above and below are called the **Spurkets**.

ADMIRAL. What are those **Decks** and **Orlops** you mentioned even now?

CAPTAIN. A deck in a ship is a floor planked, whereon the great guns are mounted, and where men walk to and again. And these are distinguished by the first, second, and third deck beginning from the lowest and so upwards. Now besides these whole decks some great ships have half a deck, and it is that which reaches from the main mast to the stem¹ of the ship; as also a quarter deck, which reaches from the steerage aloft to the Master's round-house; and sometimes a spar deck, which is the uppermost of all of them and lieth betwixt the mainmast and the mizen. And this deck is likewise termed the orlop.² And if a ship

¹ *Sic*; but it is clearly an error, and should be stern, or steerage.

² He means a deck (not the spar deck) is called also an orlop; but in altering Mainwaring he has, as usual, produced a worse result.

have three decks, the second and lowest are sometimes (but perhaps improperly) called also orlops. But the uppermost deck of a three-decked ship is never called by any other name but the deck.

ADMIRAL. The better to understand this passage you must explain the terms **Stem**, **Round-house** and **Steerage**, and where those parts of a ship are to be found.

CAPTAIN. The stem of a ship is that main piece of timber which comes bowing wise from the keel below, whereunto it is scarfed (that is let in or fastened) right before the forecastle ; and this stem doth guide the rake of the ship. And the hollow part,¹ resembling an arch which is betwixt the transom and the lower part of the gallery is named the **Lower Counter** : as the **Upper Counter** is that which comes from the gallery to the lower part of the straight piece of the stern. But that piece of the ship which is fastened to the stem, and supported with a knee, is named the **Beak** or the **Beakhead** ; and it is indeed the becoming part and the main grace and beauty of a ship. And that sharpness of a ship which is underneath the beakhead is termed the **Cutwater**, because it cuts the water, and divides it ere it comes to the bow of the ship. And that small piece of timber set under the lower end of the beak, having two holes through it is called the **Comb**.

As for the **Round-house** it is the uppermost room or cabin of any note upon the stern of the ship. And it is the proper sleeping place for the Master ; and the deck or floor over it is named the **Poop** of the ship. And the **Steerage** is that part where he standeth which steereth (that is, guideth the ship with the helm) ; and in ships of war and burthen it is always before the bulkhead of the

¹ Of the stern ; this is out of place in all the MSS.

Great Cabin, which is the retiring place for the Captain, and where he sleeps and eats ; though of late, in his Majesty's ships of the first and second rank, they have (for state sake) lately framed a fair and pleasant room over the steerage, wherein the Captain usually eats, and this they call the **Coach** ; for no other reason, as I think, but because it resembleth a land coach, without wheels.

ADMIRAL. What part of a ship is named the **Forecastle** ?

CAPTAIN. It is that part where the foremast standeth, and it is severed from the rest of the floor of the ship by a bulkhead (a bulkhead being any division made cross the ship, with boards or ought else, whereby one part or room is separated from another), and these bulkheads of the forecastle and the half decks are sometimes termed the **Cubbridge-heads** before, and the cubbridge-heads behind. And the small heads made up in the hold of the ship upon occasion of stowage of corn or the like goods that will shoot or slip from one side to the other, are termed **Pouches**. And that part of the forecastle which is aloft is termed the **Prow** of the ship.

ADMIRAL. And what part of the ship is that you call the **Hold** ?

CAPTAIN. It is that part which is betwixt the keelson and the lower deck, in which are severed by bulkheads, the **Steward Room**, where the butter, cheese, and the like kind of victuals are stowed ; the **Bread Room**, which is for the bread and biscuit ; the **Powder Room** wherein the powder barrels are laid up ; the **Store Room**, which is in the custody of the Boatswain for the stowing of all his provisions, and in merchant ships the rest of the goods in general. Here also are lodged the hogsheds and butts of beer, placed one upon

another. The lower tier whereof is for the most part fixed in the ballast. And the sea words of art belonging to this part are **Rummage the Hold**, that is, look what is within it : **Clear the Hold**, that is, make it neat and handsome : **Stow** the goods and beer in the hold, that is put them down and lay them up safely in the hold.

ADMIRAL. Which is the **Stern** of a ship ?

CAPTAIN. All the aftermost, that is hindermost part of a ship is, by a general appellation, received for her stern. But when it is taken in a stricter sense it is only the outmost part aloft that is behind. And that main timber piece which lieth cross or thwart the stern, and so layeth out the breadth of the ship at the buttock, is named the **Transom piece** : so that this **Buttock** is only the breadth of the ship right astern, from the tuck upwards, and as she is built either broad or narrow at her transom so she is said to have a broad or narrow buttock.

ADMIRAL. What mean you by the **Tuck** ?

CAPTAIN. It is a sea word intimating the trussing or the gathering up of the ship's quarter under water. The which, when deep in the water, causeth the ship to have a broad (which is also termed a fat) quarter ; and withal it hurteth her steerage, by reason that it keeps the water from passing swiftly to her rudder. And if this trussing lie over high above the water the ship will want bearing for her works behind, unless withal the quarter be well laid out.

ADMIRAL. By this I apprehend that what you call the **Quarter** is that part of a ship's hull or main body, which lieth from the steerage room to the transom.

But why should the slow passage of the water to the ship's rudder hinder her steerage ?

CAPTAIN. Every man knows that the **Rudder**

of a ship (which is that piece of timber which is hanged on the stern post by four, five, and sometimes six iron hooks, called **Pintles**, for which are fitted certain other irons, termed **Gudgeons**) is as it were the very bridle or reins of a ship, whereby she is turned and managed at pleasure by him who stands at the helm. The which **Helm** is put into the rudder, and by a staff (called the **Whip**), the which the helm man holds in his hand, the whole ship is governed and directed. And it is to be observed that the narrower this rudder is, the better it is for a ship's sailing ; provided that the ship will feel this rudder, that is, be guided by it. For by this narrowness of the rudder she cutteth or passeth through the less water, and the better and sooner will a ship feel her rudder if in her sailing the water passeth swiftly unto it. Now the uppermost part of this rudder is termed the **Head of the Rudder**.

And hence it is that a ship having a fat quarter (as before said), the water goeth but dully by it unto the rudder ; and thus her steerage is hindered. As for the words of sea art belonging to steerage of a ship : they are these : **Port the Helm**, which is done when in the conding or directing of the steersman how to govern the ship, the helm is to be put on the left side of the ship ; as also **Starboard the Helm**, which is as much to say, put the helm on the right side of the ship. And it is to be noted that in this conding it is not said **Larboard** the helm, though that be all one with Port the Helm, because the words Starboard and Larboard are of so near a sound that in case of haste the one might be mistaken for the other, by either the speaker or hearer ; to the much peril of all in general. And therefore the word Port is always used instead of Larboard. The third word of art used in the point

of steerage is **Right the Helm**, which is as much to say, keep it even with the midst of the ship. The fourth word of art of this kind is, **Bear up the Helm**, that is, cause the ship to sail more at large before the wind. As for the words loof, or aloof, or keep the loof, or fall not off, or ware no more, or have a care of her lee latch, we shall speak more by and by.

ADMIRAL. But even now you mentioned the phrase of the bearing of a ship in another sense than all these.

CAPTAIN. Indeed this word **bearing** is very variously taken amongst seamen. For when a ship doth carry ordnance or great guns she is said to **bear her ordnance**. When a ship sails upright in the water, having her sails abroad in a fresh gale of wind, she is said to **bear a good sail**. When a ship sails towards the shore, she is said to **bear with the land**. When a ship, being to the windward, cometh under another ship's stern, and so gives her the wind, she is said to **bear under her lee**. When a ship sails into the harbour before the wind, or with the wind large, she is said to **bear in with the harbour**. And on the contrary when a ship keepeth off from any land she is said to **bear off from it**. Also when a seaman would let you know how one cape or place lieth from another, he will say it beareth off so and so. In hoising-in, that is pulling up anything into the ship or boat, if it chance to catch hold of anywhere, the sea phrase is **bear it off from it**. And to **bear up**, and **bear up round** are words used in conding (as afore-said). As for the bearing of a ship in the sense you now inquire after, it is meant when a ship having too slender or lean a quarter sink or swim over deep in the water, under an over-light burthen ; and so cannot stow or carry beyond a small

quantity of goods or weight ; and from hence also it is termed the **burthen**. So that a ship is said to be of so many tons of burthen, when she will stow or carry so much in weight of goods. And by the **Bulk** of a ship is meant the whole content within her hold ; into which these goods are hoised, that is, put into the hold through the hatches.

ADMIRAL. And what and where are these **Hatches** ?

CAPTAIN. They are those parts which are, as it were, the doors of the decks, cut out in the mid-ship, or middle part of the ship betwixt the main-mast and the foremast ; and these are laid open at the letting down of any goods or things into the hold. And when these hatches are raised up somewhat higher than the common floor of the deck, those pieces of timber or planks, which raise or bear them up are called the **Coamings** of the hatches, in which Coamings also are usually made loopholes for musketeers to play through them.

ADMIRAL. Whereabouts lieth that part of the ship the which is called the **Bow** ?

CAPTAIN. It begins at the loof and compassing ends of the stem ; and ends at the sternmost end of the forecastle. And thus a broad bow is termed a **bold Bow** ; a narrow thin bow, a **lean Bow** ; and the **Bow piece** of ordnance is that which lies mounted in the bow of the ship.

ADMIRAL. Which is the **Loof** of the ship ?

CAPTAIN. The loof is that part aloft which lies right before the chess-trees. The which **Chess-trees** are two small pieces of timber with a hole in them ; the one on the one side of the ship, and the other on the other. And therefore such guns as lie in that part are called the **Loof-pieces**. And this word loof is also a word of art used in the conding of the ship, as, **loof up** is to bid the steers-

man to keep the ship near the wind. To **loof into** a harbour is when a ship sails into a harbour close by the wind. And to **spring the loof** is when a ship that before was going large before the wind is brought close by the wind, or, as the sea word is, doth clap close by the wind. Also when a ship sails by a wind or with quarter winds the ordinary words of conding or the direction to the helmsman are : **aloof**, or **keep your loof**, or **fall not off**, or **veer no more**, or **keep her to**; or **touch the wind**; or **have a care of the lee-latch**. All which words imply almost one and the same thing, and express as much as to command him at the helm to sail the ship near and close by the wind. On the contrary, these words of direction, **ease the helm**, **no nearer**, **bear up**, are used when the ship is to be steered more large or right afore the wind. And there are some words which are common to both these, as **steady**, which is to keep the ship from going in and out, the which in sea phrase is to keep the ship from making of yaws.

ADMIRAL. What timbers are those called the **Carlings** ?

CAPTAIN. These lie alongst the ship from one beam to another ; and they serve not only to strengthen the ship, but upon them also those ledges rest on which the planks of the decks are made fast. And all these carlings have their ends let into the beams, and this is termed **culver-tail**. But the **Carling-knees** are those timbers which do pass thwart the ship from her sides to the hatches ¹ [and they are laid betwixt the two masts. And the **Hatchway** is that place which is directly perpendicular over the hatches so that to stand or to lay anything in the hatchway is to lay it so as that the hatches cannot be come unto nor opened.]

¹ The text of E is faulty here.

ADMIRAL. What piece of timber in a ship is that which you call the **Cat** ?

CAPTAIN. It is fastened aloft over the hawse, having at the one end two shivers wherein is reeved (that is to say, put through) a rope with a block (which **Block** is a piece of wood with shivers in it) and unto it is made fast a great hook of iron. And the use hereof is to trice up the anchor from the hawses, to the top of the forecastle, where there is fastened a **Stopper** (which is a piece of a rope, spliced unto it), and this serveth to hitch the hooks into the rings of the anchor. And thus much for the cat itself. But those holes which are termed **Cat-holes** in a ship are above the gunroom ports in the stern, and through them, when cause requireth, the ship is heaved astern, by a stern-fast (the which **Stern-fasts** are certain fastenings made behind the stern) to which is brought some hawser or cable, the other end whereof is made fast to the capstan.

ADMIRAL. The better to understand this passage you must explain what these hawses, shivers, and capstan are.

CAPTAIN. Of capstan there are two kinds : the main capstan and the jeer capstan.

The **Main Capstan** is that piece of timber which is placed next behind the mainmast, and the foot thereof is fastened in a step, on the lower deck, and the head betwixt the two upper decks. The parts of which capstan are these : the **Foot**, which is the lowest part thereof ; the **Spindle**, which is the smallest part ; the **whelps**, which are set like brackets upon the main body of the capstan close under the barrel ; the **Barrel**, which is the main substance or body of the whole piece through which are cut these holes wherein the bars are put ; and these **Bars**, called the capstan bars, are small pieces of

timber, whereby the men heave and turn it round. Then is there the **Pawl**, which is a piece of timber bolted to one end of the beams of the deck, close unto the body of the capstan ; but yet so as that it hath liberty to turn about every way. And against it the whelps of the capstan do so bear that by them the capstan is stopped from turning or reversing ; and this stopping is termed pawling of the capstan. Now the main use of this capstan is to weigh the anchors, to hoist or strike down the topmasts ; to heave into the ship any ponderous thing ; or to strain any rope that requireth a main stress.

As for the **Jeer Capstan** ; it is placed in the same manner as the former, between the mainmast and the forecastle. And the use of this is to heave upon the jeer rope (of which rope more shall be spoken when we come to mention such ropes as belong to a ship in general) or to hold off by, when the anchor is in weighing. And at the foot of this jeer capstan are likewise fitted certain whelps, but less than the forementioned. And these serve to heave upon the viol (of which also more shall be noted when we speak of ropes).

Now the words of art belonging to this work at the capstan are : **Come up Capstan**, that is, slack the cable that you heave by, and in the same sense, or very near it, it is said **Launch out the Capstan**. And **Pawl the Capstan**, which is stop it with the pawl that it reverse not.

As for that which is called the **Step**, whereunto the foot of this capstan is set, it is that piece of timber wherein the foot of any other piece of timber standing upright is put into ; as the masts and the like.

ADMIRAL. And what are your **Shivers** ?

CAPTAIN. Of these there are two sorts : the

one of brass, the other of wood. The brazen ones are only in use in the heels of the topmasts (of which heels more shall be said when those masts are spoken of). The wooden shivers are either of one whole piece of wood, and then are used in small pulleys only, or small blocks; or are made of quarters of wood, scarped or let one into another, and so used in the knights and winding tackle blocks; and into these shivers are put little square things, called **Coaks**,¹ which have holes in them; and these keep the shivers from splitting and galling of the pin of the block wherein they turn.

ADMIRAL. What are these knights, and which be the winding tackle blocks?

CAPTAIN. Of these knights there are two: the **Main Knight** and the **Fore Knight**. And they are pieces of wood, shapen or cut into the form or resemblance of some head as of a man's or a beast's; and in them go four shivers; three for the halliards, and one for the running of the top-ropes (of both which more shall be spoken in due time). And the one knight standeth aft the mainmast, and the other abaft the foremast upon the second deck.

As for the **Winding Tackle Blocks** forementioned, they are many double blocks with three shivers in each of them, and they are seized to the end of a small cable, which is brought about the head of the mast.

ADMIRAL. What are those that you formerly named **Hawses**?

CAPTAIN. They are two round holes in the very foremost part of the ship under the head or beak thereof, through which the cables pass when the ship is at an anchor. And the words of art

¹ 'Cocks.'

belonging to this business about the hawses are : a **bold hawse**, which is when this hole is lofty and high above the water, which is commendable ; a **fresh hawse**, and that is when the cable is in danger to be fretted in the hawse ; and when some new pieces are laid upon the cable in this part, it is termed **freshing of the hawse**. **Burning in the hawse** is when the cable doth endure an extraordinary stress in the hawse. **Clearing the hawse** is said to be when two cables, being let out at the two hawses, having gotten some winding or twisting one about another by the turning about of the ship riding at an anchor, the untwining of this is termed **the clearing of the hawse**. **Riding upon the hawse** is when any ponderous substance falls across before the hawse, or lies thwart of it ; or when a ship rides with her stern just afore the other's hawse, and is near unto it ; this also is called riding upon her hawse.

ADMIRAL. What is that in a ship which is called the **Davit** ?

CAPTAIN. It is a piece of timber in which (by a notch at the one end) is hung a block by a strap ; and this block is called the **Fish-block**, and by it is haled up the fluke of the anchor, so to fasten it to the ship's bow or loof. And this davit may be shifted to either side of the ship as occasion shall require. The long boat also, belonging to a ship, hath a small davit which is set over the head thereof and hath a shiver in it, into which is brought the buoy-rope wherewith the anchor is weighed, and it is made fast in the carlings in the boat's bow.

ADMIRAL. What block is that named the fish-block and why is it so named ?

CAPTAIN. Because it is a peculiar block belonging to the fish.

ADMIRAL. What is this fish ?

CAPTAIN. This word **Fish** (when it is a ship word) is taken in a double sense.

The fish here mentioned and enquired after is a tackle, hung out at the end of the davit by the strap of the block. In which block there is a runner, with a hook at the end called the **Fish-hook**, and this serves to hitch (as aforesaid) the fluke of the anchor ; that so haling by the falls (of which falls more shall be expressed when we come to speak of ropes and tackles), the fluke of the anchor may be raised to the bow or chain-wale of the ship.

In the second place, this word fish is given to any piece of timber or plank made fast either to the mast or yard, wherewith to succour or strengthen it, if it be doubted to be too weak. And this work is termed the fishing of the mast or yard, and is performed first by the hollowing of the part that it is to be applied unto, and then by nailing it on with spikes and woolding it withal, that is, wrapping it hard round about with ropes.

ADMIRAL. What is that part you even now called the **Chain-wale** ?

CAPTAIN. **Wales** and **Bends** are all one when they appurtenance to a ship, and they are those timbers on the ship side, which lie outmost, and are usually trod upon when people clamber up the sides to get into the ship. And they are distinguished by the first, second, and third bend or wale, beginning from the water upwards. Only the **Chain-wales** are farther and more evidently laid out in the sides of the ship than any other of the wales are ; and they serve to spread out the shrouds (of which more hereafter), that so these shrouds may the better succour (that is, hold up) the mast. And these are called

the chain-wales by reason that the shrouds are made fast unto them with chains.

ADMIRAL. What are the **Bitts** in a ship?

CAPTAIN. They are those two main pieces of timber which stand pillar-wise, abaft the manger, in the loof of the ship; and they serve to belay (that is to fasten) the cable when the ship rides at an anchor: and the main timber that is laid across in this place, is termed the **Cross-piece**; and to it is belayed the cable.

ADMIRAL. What is the **Manger** in a ship?

CAPTAIN. It is a place made with planks, fastened upon the deck¹ right under the hawse being about one foot and a half in height: and the use thereof is to catch and receive the sea water that any way leaks in at the hawses when the ship rides at an anchor in a great stress.

ADMIRAL. What other blocks have you in a ship, besides the fore-mentioned?

CAPTAIN. **Blocks** belonging to ships are (as aforesaid) those pieces of wood which have shivers in them, wherein the running ropes go. Now of these blocks, some are double; and some of them have three, four, and five shivers in them; and they are distinguished by the names of the ropes whereto they serve, and of these we shall have fitter occasion to enlarge ourselves when we come to speak of the general tackling belonging to a ship.

ADMIRAL. What is that in a ship which you call the **Bittacle**?

CAPTAIN. It is that frame of timber that standeth in the steerage directly before him that steereth. And it is the destined place for the receipt of the compasses whereon the thirty-two points or winds are described; by which

¹ Note in E Butler has written 'beak.'

points all sea courses and sailings are directed. And of these compasses, there are three kinds. The **Meridian Compass** which is the most common one ; the **Compass of variation**, which showeth how much the common compass varieth from the exact point of the North and South ; and the **Dark Compass**, which is best to steer by, by candlelight, because the fly thereof hath not the points described with any other colours than white and black ; now upon this fly the thirty-two points are delineated ; upon which, underneath, is made fast the **needle**. And this needle is that iron wire, which being touched with the loadstone pointeth North and South. And here by the way let me give this needful admonition to all such as are to sail far either to the northwards or southwards of either of the Tropics upon any discovery or occasion, that they provide themselves with compasses glazed with muscovy glass, or some such kind of metal, for otherwise the fogs of those parts, which are very frequent, are of such a piercing nature that they will spoil all ordinary glazed compasses and make them to flag.

ADMIRAL. You have formerly frequently mentioned bolts and bolting, but not hitherto described them ?

CAPTAIN. They are iron pins, of which there are these several sorts : **Ring-bolts**, which serve for the bringing-to of the planks and wales, and those other whereto are fastened the breeches and tackling of the ordnance ; **Drive-bolts**, which are used to drive out other bolts ; **Set-bolts**, which are employed for the forcing of the planks, and the other works, to fall close one with another ; **Rag-bolts**, which are on each side made full of jags or barbs to keep them from flying

out of the holes and parts whereinto they are driven ; **Clench-bolts**, the which for the same end are clenched, that is made fast at the ends, where they pierce through ; **Fore-bolts**, which are made with an eye at each end, whereinto a forelock of iron is driven to prevent starting out. And, lastly, there are **Fender-bolts**, which have long and thick heads, and are struck into the outermost bends and wales of a ship to preserve her sides from bruises and hurts ; and so have their appellations from their use.

ADMIRAL. What is that you term the **Gallery** in a ship ?

CAPTAIN. It is a part generally known ; and is that becoming and beautifying frame which is made upon the stern of a ship without board : there being a passage out of the great cabin into it. And these galleries are rather for state and show and the ease and delight of the Captain than any other use and benefit. And, indeed, in such ships of war as are open built, all open galleries are discommendable, and to be avoided, in regard that they do facilitate the entrance of an enemy at a boarding of the ship. Now those small pieces of timber or wood, which in the nature of knees are used to support these galleries, as also the heads of ships, are named **Brackets**.

ADMIRAL. What are those you call **Clamps** ?

CAPTAIN. They are those thick timbers, which lie fore and aft under the beams of the first orlop, and do bear them up at either end, and are the same to them that the rising timbers are to the decks.

ADMIRAL. What are these **Risings** ?

CAPTAIN. They are those thick planks which lie afore and aft on both sides under the end of

the beams and the timbers of the second deck, and quarter deck, unto the third deck, the half deck and quarter deck, and on them the beams and timbers of the decks do bear at both the ends, by the sides.

ADMIRAL. Whereabouts is the **Cook-room** in a ship and where most conveniently placed ?

CAPTAIN. This cook-room is variously placed. In great ships it is generally in the fore-castle ; and it is in this part most tolerable, when in it there are furnaces. In some other ships it is seated in the hatchway upon the first orlop. And for ships of war it is most properly there, in regard of giving a free reverse to those great guns that lie in the fore-castle ; especially if this cook room, as some think, may be so contrived to be removed upon occasion ; that so in a fight it may be struck down into the hold of the ship. But for mine own part I cannot apprehend how it can be otherwise placed in great ships than in the fore-castle, by reason of the number of men which necessarily require the dressing of much meat ; and so by consequent a large severed room to dress it in. And besides, by being in the fore-castle there is the more room afforded for the stowing of victuals, or anything else ; and when the cook-rooms are in the mid-ship, especially in great ships, they must needs occasion a great hazard of the spoil of the drink and victual stowed in the hold, by the vicinity of the fire and the heat thereof ; and are also very offensive by the smoke ; and moreover, whensoever the cook-rooms are thus placed, the burthen and lading of the ship, and so the weight and charge thereof, must of necessity be stowed at both her ends ; whereby she cannot choose but be much weakened, and become subject to that kind of

warping which in sea-language is termed **camber keeled**.

ADMIRAL. How are your sea **Ladders** fashioned and how placed ?

CAPTAIN. Of these there are two sorts, and they are employed in two several and distinct places and parts. The one kind are for the most part used in harbours, or in very fair weather, sometimes abroad at sea ; and have entering ropes hanging at them, and these kinds of ladders are made of wood. The second sort of ladders are made of ropes fastened together ladderwise, and are hung over the galleries and sterns of ships to enter by them over the sterns, out of the boat, when the weather is foul and the sea goes so high that a boat without peril or staving cannot lie, nor come to the ship side.

ADMIRAL. What are those which in your sea language are called the **Fashion-pieces** ?

CAPTAIN. They are those two timbers that describe the breadth of the ship at the stern ; and in each side thereof are the outer timbers of the stern, excepting those aloft where the counter (as aforesaid) is counted.

ADMIRAL. Which is that part of a ship which may properly be termed her floor ?

CAPTAIN. This **Floor**, strictly taken, is so much only of her floor¹ as a ship doth rest upon when she lieth on ground ; and therefore such ships as have long and withal broad floors, do more securely lie on ground and are not so apt to heel (that is to fall on their sides) as others which are crank by the ground (that is, which are narrow in their floors) and which cannot be grounded without peril of overthrowing, or at the least of wrenching their sides. And here it is to be

¹ The earlier MSS. read ' bottom.'

noted that the word **overthrow** is only used by seamen, when a ship is brought to be trimmed on the shore, and so by some accident or improvidence do fall on her side ; but when a ship is turned over at sea, she is said to be overset.

ADMIRAL. What is the **Furring** of a ship ?

CAPTAIN. There are two kinds of furring. The one is after a ship is built, and then it is done by the laying on of double planks on her sides, and this is called plank upon plank. The other way (which is properly furring) is performed by ripping off the planks, and putting second timbers upon the first timbers, and upon them again other planks. And all this is done to make a ship to bear the better sail. To which end also, especially if the ship be anything wall-raised, that is, raised out straight up, they use to spike on some thin timbers or narrow thick planks all alongst her main bends and wales ; which adds somewhat towards her better bearing, though not much.

ADMIRAL. What are the **Gratings** in a ship ?

CAPTAIN. These are small ledges of sawed plank laid crossways, one into another like a portcullis, or the grate of a prison window, or door. And those are properly so termed which lie betwixt the mainmast and the foremast. And they serve as well by way of defence in a close fight, as to give light and coolness betwixt the decks to the seamen or passengers in great heats of weather. And when it is rainy weather, a tarpauling (that is a piece of canvas all over tarred) is laid over them to keep out the rain and the difference betwixt these and **Nettings** is ; in that the nettings are made with small ropes seized together with rope yarn in the form of a net, and for the most part are laid in the waists of ships only

(which waist is that part of the ship which is betwixt the two masts). But these nettings are nothing so convenient as the gratings, in regard that they may be soon cut in pieces in a fight.

ADMIRAL. What is that part which you call the **Gripe**?

CAPTAIN. It is the compass and withal the sharpness of the stem under water, and particularly towards the lower end of the stem; and the use hereof is to make a ship keep a good wind. And in this regard, by way of a farther help to this purpose, there is sometimes added a false stem to the true stem, thereby to make her gripe the more. As for the word gripe, being a sea word, it expresseth as much as to say that a ship, in spite of the helm, is apt to run her head or nose into the wind more than she should. And of this gripeing there are commonly these two causes: The one is when a ship is over deeply laden ahead, for then by reason of the weight that presseth her down in that part, her head is not apt to fall off from the wind. The other cause hereof may be the staying (that is the fastening) of the masts; for a short ship drawing much water, if her masts be stayed too much aftwards on, it will cause her head to be still running into the wind, the stemings¹ being generally long; so that all lofty² ships are to stay all their masts aftwards on and that very much, or else such ships can never keep a good wind. For it is apparent to sense that all the sails from the mainmast aftwards on, the more aft they stand the more they keep the ship to the wind; as the head-sails (that is those sails from the mainmast forwards on) the more forward

¹ This seems to be an error, see Introduction, p. xxvii.

² The earlier MSS. read 'floty'—*i.e.* of light draught—which is the word used by Mainwaring.

on they stand, the more they are enabled to flat the ship about.¹

ADMIRAL. You even now mentioned the **grounding** of a ship, but gave not the full sense thereof?

CAPTAIN. It is nothing else but the bringing of a ship on ground to be trimmed [that is, to be made clean, or to have some leak stopped or the like].

ADMIRAL. You formerly spake also of wales in a ship in general, and in particular of the chain-wale; but where is that called the **Gun-wale**, of which you hitherto said nothing at all?

CAPTAIN. It is that piece of timber which reacheth on either side of the ship, from the half deck to the forecastle; being that uppermost bend which finisheth the upper parts of the works of the hull in that place, and wherein they put the stanchions which support the waist-trees. And this is called the gun-wale, though there should be no gun at all in the ship. And the lower part of any port where any gun lieth is also termed the gun-wale. As for the waist-trees here mentioned, they are those pieces of timber which lie in the waist of the ship. And the stanchions are those which pillar-wise do support and strengthen these waist-trees.

ADMIRAL. What part of a ship is that which is termed the **Harpings**?

CAPTAIN. It is most properly taken for the breadth of a ship at her bow; although some will have the ends of the bends where they are fastened into the ship's stem to be also termed the harpings.

ADMIRAL. What are those you call hooks?

CAPTAIN. These **Hooks** are those forked timbers in a ship which are directly placed upon

¹ From the wind.

her keel ; as well in the rake as in the run of her. And the compassing timbers which are before, and help to fortify and strengthen the ship's stem and all her forepart, are termed the¹ hooks.

ADMIRAL. What mean you when you say that the ship is **housed-in** ?

CAPTAIN. It is when, after she is past the breadth of her bearing, she is brought in too narrow to her upper works ; and this is called **pinched-in**, as well as **housed-in**.

ADMIRAL. What are those called the **Ken-nells** ² ?

CAPTAIN. They are small pieces of timber nailed on the inside of a ship, unto which are belayed the sheets and tacks ; of which more shall be said, when the ropes and tacklings of a ship come to be particularised.

ADMIRAL. What be the **Ledges** ?

CAPTAIN. They are those small pieces of timber which come cross or thwart the ships from the waist-trees to the roof-trees, and they serve to bear up the nettings.

ADMIRAL. What are these Roof-trees ?

CAPTAIN. These **Roof-trees**, vulgarly called Ruff-trees, are those timbers which pass from the half deck to the forecastle and serve to bear up the gratings and the ledges where the nettings are fastened ; and they are supported by stanchions. And that piece of timber is also called a ruff-tree which is used to be laid over the half deck, to lay either nettings, or some sails, or pieces of canvas upon it, upon any occasion.

¹ ' Breast ' in the earlier MSS.

² *Sic.* The error probably arose originally from a mis-transcription of a Mainwaring MS. ' Keuells,' but that Butler should not know that the word was ' Kevel ' is extraordinary.

ADMIRAL. What mean you when you say a ship is **wall-reared** ?

CAPTAIN. Of this I spake somewhat formerly ; and even now I made mention of a ship being housed-in, in her upper works ; quite contrary to which when a ship is built over-right or directly up, after she comes to her bearing, she is said to be wall-reared ; the which though it be unsightly, and as the sea phrase is, not shipshapen, yet it causeth a ship to be very roomy that is large within board, and withal makes her a wholesome ship in the sea, especially if her bearing be well laid out.

ADMIRAL. What mean you by **wholesome** in the sea ?

CAPTAIN. It is (in sea acceptation) when a ship will hull, try, and ride well in the sea, without over-much rolling or labouring.

ADMIRAL. You have already told what hulling is, but what do you here mean by trying, riding, and labouring in the sea ?

CAPTAIN. A ship is said to **try** when she hath no more sails abroad than her main-sail, with the tacks close aboard, the bowlines set up, the sheets close aft, and the helm tied down close by the board (and of all these phrases we shall make explanation hereafter), and in this manner to let her lie in the sea. And when it blows so much wind as the mainsail cannot be maintained, that is, borne out, then a ship is made to try with her mizen only.

ADMIRAL. What is it that you term the Riding of a ship ?

CAPTAIN. A ship is said to **ride** when her anchor holds her so firm that she drives not any way, either with the tide or wind ; for though she must needs sheer, that is, wave to and again from one side to another, yet if her anchors hold

fast, and come not home (as the sea phrase is) she is said to ride. And the way to know whether a ship thus rides or not, is by observing whether she mount and fall with her head when she is at an anchor ; the which seamen term to heave and set. Now for a ship to ride well, it is not only when she is thus made fast by her anchors, in some good road (that is, in such a place where neither the sea nor wind hath much power over her), and when she doth not strain, that is, stretch, her cables over-hard. But also a ship is said to ride well, when she is so built as that in riding she doth not so over beat herself into a head sea, as that the waves over-rake her (that is, wash her decks from stem to stern). And a ship rides at most ease, and in most safety, when she hath two cables spliced, or made fast one unto another. And this is called a shot. And the reason why she rides at most ease this way is because the length of this shot doth allow her the more liberty to play and rise upon the sea than otherwise she could have, if she did ride with a single and shorter cable. And withal also, this shot by reason of its length is so weighty that the ship cannot much strain it ; for when a great sea, that is a high billow, comes to jerk up the ship, the shot is so long ere it comes to the straining that the force of the sea will be past, before it come to bear so much stress as a shorter cable would do. And it is to be observed that the deeper the water is, the worse it is to ride in, as requiring so much more in length of cable ; for, howsoever the sea will break more in shoal water yet hath it not that power nor weight which the deep water carrieth with it. In riding therefore in any extraordinary stress, the topmasts are usually struck down, and the yards brought alongst the ship.

As for the sea phrases used in a ship riding, they are as followeth :

To **ride a-cross** ; that is to ride with the main yards and fore-yards hoised up to the hounds ; and both yards and arms topped alike.

To **ride a-peak** ; which is to ride with one end of the yards peaked, or turned up, and the other end hanging or pointing downwards. Although true it is that when a ship in the weighing up of her anchor is brought up directly over her anchor, this likewise is termed riding a-peak.

To **ride hawse-full** ; and that is when a ship, in an extraordinary stress of weather, doth fall so deep into the water with her head that the sea beats into the hawses.

To **ride thwart** is to ride with the ship's side upon the tide.

To **ride betwixt wind and tide** ; is when the wind hath equal force over the ship one way and the tide the other way.

To **ride wind-rode** ; is when the wind hath more power over her in her riding than the tide hath.

To **ride portise** ¹ is when the yards are struck upon the deck.

And all these sea terms serve to express the several fashions and forms of a ship's riding at an anchor ; of which also more shall be mentioned when we come to speak at large of anchors, sails, yards, and their appurtenances. And as for the fore-mentioned phrase : Labouring in the sea, it is no more than to imply that a ship in foul weather, and when the sea goes higher, doth roll or tumble much, and is very unsteady.

ADMIRAL. You have spoken fully of the

¹ Usually spelt ' portlast.'

riding of a ship at an anchor ; but what are those in a ship which are termed the **Riders** ?

CAPTAIN. They are those great timbers, whereof some are in the hold, others aloft, which are bolted on upon the rest of the timbers to fortify and strengthen them when it is found that the ship is over weakly built. And these, howsoever in this case they are absolutely necessary, yet do they so straiten the hold of a ship when they are used there, that it makes it incapable of the stowage of much goods.

ADMIRAL. What are those you call **Lockers** in a ship ?

CAPTAIN. They serve in nature of boxes ; and such of them as are placed near unto the great guns are employed to receive those shot into them which are fitted for those guns. But withal it is to be noted for an improvidence to lodge any shot in this manner during a fight, lest a shot from the enemy falling among them should thereby procure a great deal of spoil to such as chance to stand near. And therefore it is rather held fit that these shot should at such a time be conveyed into the coil¹ (that is, rolling up) of some cable or great hawser ; the which being laid flat upon the deck, cannot procure the like hurt or damage.

ADMIRAL. What is the **Outlicker** in a ship ?

CAPTAIN. It is very rarely used in great ships or any ships of war ; and wheresoever it is in use, it is by reason that the mizen-mast is placed so far aft that there is no room within board to hale down the sheets thereof flat enough ; and therefore this outlicker helpeth to do the work. And it is a small piece of timber, three or four yards long (as occasion requireth) made fast to the top of the poop of the ship, and so lieth right over the stern,

¹ ' Quoile.'

and at the outmost end thereof is a hole into which the standing part of the sheet is reeved and made fast, through the block of the sheet and then a second time reeved through another block, which is seized to this piece of timber, close by the end therefore.

ADMIRAL. You spoke of a ship even now under the appellation of a **Man-of-war** ; how is it taken in your sea tongue ?

CAPTAIN. It is only taken for a ship of war, or indeed for any vessel, though but a small one, employed to get purchase.¹

ADMIRAL. What requirable parts are there in a ship of war more than in any other ?

CAPTAIN. This will take up a Dialogue by itself and (if you please) shall be reserved for one.

ADMIRAL. Be it so ; and proceed in your former method, and tell me what those are which are called **Partners** in a ship ?

CAPTAIN. These are those timbers which are bolted to the beams, which compass and shut in the masts at the decks ; and are indeed the strength and means of holding the masts steady in the step ; and they likewise keep them from rolling (that is falling) overboard or over the ship's sides. And of these partners, some there are also at the second deck to the same purpose ; only the mizen-mast hath but one pair of partners, in which that mast is wedged so firm as that it cannot budge by any force.

True it is that some ships will not sail well unless their masts be loose in the partners, but it is dangerous in a storm thus to have them loose, by reason that it may wring (that is force) the partners ; which if they should give way

¹ Take prizes.

there is no other remedy but to cut the mast by the board.

ADMIRAL. What is that you call the **Pillow**?

CAPTAIN. It is that timber whereon the bolt-sprit beareth at its coming out from the hull of the ship aloft, close by the stem; and it is called the pillow of the bolt-sprit, of which bolt-sprit we shall say more when we treat of masts in general.

ADMIRAL. Which be those you call the **Ports** of a ship?

CAPTAIN. The word **Port** in the singular number, is used (as aforesaid) in the conding of a ship when she sails right before the wind, or when the weather sheet is aft, as far as the bulkhead, for then the conder saith **steady a-port**; that is, put the helm to the larboard, or left side of the ship. A ship also is said to **heel a-port** when she inclineth to the left hand and so swims not upright. Likewise when anything is to be carried or removed to the left side of the ship, it is said **put it a-port**.

But the word **Ports** in the plural, as when they say the ship hath so many ports, implieth those square holes through which the great guns are thrust out, and of these we shall speak at large when we come to speak of the guns proper to be carried in ships.

ADMIRAL. What are those parts you term the **Ranges** in a ship?

CAPTAIN. Of these there are two: the one is aloft upon the fore-castle, a little abaft the fore-mast; the other in the beakhead before the woolding of the bolt-sprits. That in the fore-castle is a small piece of timber, which passeth over from the one side of the ship to the other, and it is fastened there to the timbers, and hath two knees about the middle on either side of the

foremast, fastened to the deck and the timbers ; in which run the topsail sheets in a shiver, and it hath diverse wooden pins through it, to belay the ropes thereunto.

As for the other range in the beakhead, it is in the same form with the former, and as the former hath the foretacks the fore topsail sheets, the fore bowline and the fore loof-hook belayed unto it, so this hath the sprit-sail and the ropes belonging thereunto, as also the sprit-sail topsail ; of all which more fully shall be spoken when we come to the description of ropes and sails.

ADMIRAL. Which are those which are termed the **Ribs** in a ship.

CAPTAIN. By reason of the resemblance that the timbers of the futtocks belonging to a ship, when the planks are taken off, or not put on, do carry to the ribs of a dead carcass, they are in general named the ribs of a ship, though they have besides in particular their several appellations. And thus when two ships by lying aboard one another in a sea gate (that is, when the sea causeth some extraordinary motion to a ship, by some swelling or concourse of waters) have thereby any of those timbers broken, the sea language is the ship hath broken some of her ribs.

Also those little, long, wooden pieces which are made with holes in them, like unto the comb under the beaks, and do belong to the parrels of the yards are termed the **ribs of the parrel** ; of which parrels more hereafter.

ADMIRAL. What are **Scuttles** in ships ?

CAPTAIN. They are those square holes cut through the decks and made capable for the body of a man to pass through them at any hatchway or part of the deck, into any room or

part of the ship below : and they are generally before the mainmast ; before the knight in the forecastle ; as also in the gun-room, to go down to the stern sheets ; in the Master's cabin or round-house likewise, sometimes thereby to retire down into the Captain's cabin when they are forced from aloft in a fight. And generally where there is any part or place for a passage to be made through from one deck to another, these scuttles are to be found.

Now besides these great scuttles, there are certain small ones with gratings ; and these are cut out right over the great guns that lie betwixt the decks, and they serve to give vent to the smoke of the ordnance in a hot fight.

Those little windows and long square holes also, which are cut out in the cabins to let in light, are termed scuttles, and they are contrived with lids to open and shut at pleasure. The former greater scuttles likewise have certain covers fitted for them, lest people should at un-awares fall into them in the night time ; and withal to keep out the wet when it rains.

ADMIRAL. What mean you by the sea word when you say **settle a deck**.

CAPTAIN. When cause requireth to have any deck in a ship to be laid lower than it was at first, it is termed the settling of that deck. In which case it is easier to settle the lowermost, than to raise the uppermost. Only care is to be had that, by this settling of the deck, the guns which lie upon it, or are to lie upon it, be not brought over near the water, which is a main fault in all ships of war, by reason that these guns cannot be borne out at the portholes, nor used in any fight, or upon any occasion without peril ; in the least flapping of a sea.

ADMIRAL. You spake formerly of the furring of ships, what is that you call the **sheathing** of them ?

CAPTAIN. It is a kind of new casing of them, and it may be done more ways than one ; but the surest known way with us is when it is done with thin boards, having tar and hair put betwixt the casing ; that is to say, betwixt the old sides of the ship, and the new thin boards. And this sheathing is only practised upon that part of the ship that swims under the water ; and the use thereof is to keep worms from eating through the innermost planks. And these seaworms are generally found in all parts to the Southwards near and betwixt the Tropics. And it is to be observed that the thinner the outward boards be, it so much the better is ; for the worm will the sooner pierce through it and come to the tar and hair that is laid betwixt these new and the old planks ; the which they can by no means endure, and thereupon will forsake the ship. And besides, these outward boards, by being thin, will the less hinder the good sailing of the ship.

ADMIRAL. I have heard that in some parts of the East Indies, and especially about Surat, the ships are so extremely eaten with worms that they are forced to double-sheath them.

CAPTAIN. I have been told the same, and withal that they are constrained to sheath their rudders with thin plates of copper, to preserve the edges of them from being eaten flat by the worms ; and I the rather believe it, in regard that it is most true that the growing flat of the edges of rudders, proveth a great hindrance to the ship's feeling of the helm.

ADMIRAL. I have heard also of a kind of varnish used to this purpose in some of those parts,

wherewith ships being trimmed under water are excellently preserved from these worms.

CAPTAIN. I have been told this too, and the part is said to be China ; the which, if true, were worth a voyage to bring home the experiment. And the rather, because all our kinds of sheathings are very prejudicial to the good and nimble sailing of ships ; and in that respect it is very improper for ships of war, and as much as may be to be avoided. I have been informed likewise, that the berry known by the name of red pepper (whereof there is great store in all the West Indies where the worm is also very common), being thoroughly dried in an oven or in the fume, and then beaten very small, and a convenient quantity thereof mixed with the pitch and tar, wherewith a vessel is to be paid or trimmed, will preserve her from being eaten with the worm, at least so long as the stuff will hang upon her sides, which may be about two months space. And, surely, this is not incredible, considering the extreme heat and violent biting nature of this red pepper, which being but tasted gets all the mouth on fire. And therefore I could wish that some store hereof were brought into these parts to make the experiment.

ADMIRAL. What is that in a ship which is termed the *Skeg* ?

CAPTAIN. It is that small and slender part of the keel which is cut slanting, and left a little without the stern-post. But these skegs are but little in use nowadays ; for, first, they are apt to snap off, and so may endanger the stern-post itself. Secondly, it is often found when ships that have these skegs ride in a river or harbour, if any other ships ride near unto them these skegs catch one another's cables betwixt their rudders, to the spoiling of the cables, and endangering of the

breaking of the rudder. And, thirdly, when any one of these ships is under sail these skegs cause much dead water betwixt them and the rudder, and so both hinder her steerage and way. And in these respects these skegs are (as aforesaid) generally left off ; and instead of them the use now is to hang the rudder down close by the stern-post, with the bottom thereof as low as the very bottom of the keel ; only a little piece thereof is pared away, towards the aftermost sides thereof.

Now the use of these skegs, when they were in use, was only to save the rudder from beating off, if the ship should chance to beat on ground.

ADMIRAL. What mean you by the word **Strake** ?

CAPTAIN. It is a term used for the seam of a ship that is betwixt two planks ; as the garboard strake (as aforesaid) is the first seam next unto the keel. Seamen also use to say that the ship **heels a strake** or two ; which is as much to say that she inclineth, or hangs to the one side more than the other, to the breadth of one or two planks. And some ships are built with one or two standing strakes, as they call them ; that is, when there is the whole breadth of a plank or two, rising from these standing strakes before they come to her floor timbers. But these kind of straked ships are bad to lie on ground, because they are in peril to wring their keels : true it is that this makes them keep an excellent wind, and therefore is it much used with the Flemings.

ADMIRAL. Which is the **Stirrup** in a ship ?

CAPTAIN. When by any mischance a ship hath beaten off some piece of her keel, which cannot conveniently be come unto to be mended, a new piece must of necessity be patched unto it ; the which is bound on with an iron, that passeth

under the keel and so up on either side of the ship, and is there nailed very firm with iron spikes, to strengthen it. And this piece thus made fast is termed a stirrup.

ADMIRAL. What signifyeth the Trim of a ship?

CAPTAIN. Most commonly by the **trim** of a ship is understood the swimming of her; as whether she swims deep with her head or deep with her stern, or upon an even keel; that is, upright in the water. And in which of all these ways and postures a ship saileth best, that is called and accounted to be her trim.

True it is that these particulars alone do not conduce to the production of this trim; for some ships are found to sail well or ill, according to the staying of their masts, and the slackness and straightness of their shrouds and the like. And therefore, to speak properly, the true trim of a ship consisteth in that particular posture or ballasting of her which most evidently conduceth unto her good sailing.

As for the ways of finding out this trim, they may be discovered when, a ship sailing in company of another ship, the people in the ship, or some ponderous weight, shall be brought for some number of glasses or hours to the ship's head; and then again for the like space of time to the ship's stern; and so also to the midship, that she may go upon an even keel. And after all, this by making the like trials by easing, or making taut of the ship's stays; as likewise by the wedging or unwedging of her masts, and the like. And in whichsoever of all these, it is found that she makes her way best, that is it which is truly and certainly to be accounted for her true trim; and in it she is carefully to be kept.

ADMIRAL. What is that, which is most properly called the **Ballast** of a ship ?

CAPTAIN. Whatsoever is laid into the hold of a ship, next unto the keelson, to keep the ship stiff for her bearing in the sea, may be said to be her ballast.

And here the words of our art are : **Trench** the ballast ; which is to divide it into two several parts or more, as it lies in the hold.

The **ballast is shot** ; that is, it is slipped from the one side to the other.

And when a ship hath not ballast sufficient in her hold, to keep her stiff to bear her sails, she is said to be **walt**.

ADMIRAL. What are those you call the **Waist-cloths** ?

CAPTAIN. All the cloths which are hanged about the cage works, that is, upon the very uppermost works of a ship's hull, are termed waist-cloths. And the use of them is to blind or shadow the men from the view or sight of an enemy in a fight ; and thence also they are called **fight**s.

ADMIRAL. When is a ship said to be **water-borne** ?

CAPTAIN. When she is even with the ground, and almost ready to float.

ADMIRAL. What is the **Water-line** of a ship ?

CAPTAIN. It is that line which shipwrights say is to be the depth of the water that the ship is to have, for to be fully afloat or to swim in when she is laden, as well ahead as astern ; for it is to be known that no ship doth draw so much water ahead as she doth astern, for if she should, she could never steer well.

ADMIRAL. What call you the **Water-way** ?

CAPTAIN. It is that small piece of timber, or ledge of timber, which lieth fore and aft on the ship's deck, close by the sides ; and it serves to keep the water from passing down betwixt the decks.

ADMIRAL. Which is that you name the windlass in a ship ?

CAPTAIN. A **Windlass** is only in use in small ships ; and the Flemish ships have them very generally, because being weakly manned they could not else weigh their anchor. And it is a thick piece of timber, having some six or eight squares,¹ and it is fixed abaft the stem, where the cables come in, and it reacheth from one side of the ship to the other. And these windlasses will purchase (that is, force or draw up) more than capstans can, but not so fast ; and they are employed (as capstans are) for the weighing up of anchors ; and in this particular precede and excel the capstan, in that the men that are employed in this work are not in so much peril as those that weigh by the capstan ; for at the capstan, if any of the bars thereof should chance to fail, the men that heave, especially if it be done in a sea-gate, are in danger to be thrown against the ship's sides, and have their bones broken to pieces² ; whereas when they use the windlass, it is done with hand spikes (that is, with wooden levers) put into the holes thereof, of which, though any one of them should break, yet the windlass would pawl itself and so the hurt is avoided.

ADMIRAL. What mean you when you say **wood and wood** ?

CAPTAIN. That is done when two timbers are let one into another so close that the wood of the

¹ *I.e.* flat sides.

² Butler's variant of Mainwaring's 'brains beaten out.'

one doth not only join but seemeth to grow together.

And thus we have described all the parts that do particularly belong to the hull of a ship, as well within board as without ; together with such words of our sea art as casually came in our way.

We shall now proceed to speak of all the masts, topmasts, and topgallant masts, belonging to a ship of war, with their yards and other appurtenances ; and this done we will go on to make mention of all the ropes, tackling and sails due unto them.

And we will begin with that which is called the **Mainmast** of a ship, being the biggest and longest of all the rest. And it is raised and stands upright in the midst or waist of the ship, and of right carrieth the name of the main in respect of its overtopping length, and outspreading breadth.

The second mast in regard of eminence is that termed the **Foremast** ; and it is sited in the fore part of the ship ; and this also standeth upright as the former.

The third mast of those which are placed perpendicular is that named the **Mizen-mast** ; and this standeth in the stern of the ship, close by the steerage. And some great ships there are which require two of these mizen-masts ; and then that which is next to the mainmast is called the main mizen, and the other which is placed nearer the poop is termed the bonaventure mizen.

A fourth mast there is in a ship, called the **Bolt-sprit** ; and this is that mast which is placed fore-

most in the very head of the ship, and stands not so directly upright as the other three, but sloping-wise and pointing forwards.

Now of all these masts and the use of them we shall have occasion to say more when we come to treat of the best ships of war.

And everyone of these masts have their **top-masts**, which are made fast and settled into their several tops above. And two of these, the main-mast and the foremast, have their **Topgallant masts** besides, and these which are small masts fastened to the heads of the topmasts. And upon the heads of these topgallant masts are set up the flag staves, and they serve to let fly (that is, to shew abroad) the flags, from whence they have their names. And these are all the masts belonging to a ship, or man-of-war.

ADMIRAL. What are those pieces, which upon these masts, are termed the caps ?

CAPTAIN. The **Cap** of a mast is that square piece of timber put over the head of it, that is to say, the uppermost end of any mast ; and it hath a round hole made through it, whereunto the mast is put ; and by these caps, the topmasts, and topgallant masts are held firm and steady. And the cross pieces of timber, set upon the heads of these masts, being bolted and let one into another, are termed the **Cross-trees**, though strictly and properly those main pieces of timber, which pass athwart and cross the ship, are to be called cross-trees, and these **Trestle-trees**,¹ and the use of them is to firm the topmasts, whose feet are fastened in them, as the feet of the lower masts

¹ He has written 'cross' in E, but in either case he has muddled Mainwaring's explanation ; 'those two pieces which go thwart ships are called cross-trees and the other which go longst ships are called trestle-trees.'

are made fast in the steps ; of which steps we have also spoken already.

ADMIRAL. You spake likewise formerly of the partners, the which you said were those timbers which were bolted into the beam, which did compass and shut in the masts, at the deck of the ships ; but what are those you term the parrels ?

CAPTAIN. These **Parrels** are those frames, made of trunks,¹ and ribs and ropes, which going round about the masts, have both their ends made fast into the yards ; and are so contrived that by them the yards may slide up and down upon the masts ; and these, together with the **Breast-ropes** (which are those ropes which fasten the parrels to the yards) do hold the yards fast to the masts.

ADMIRAL. What are the **Cheeks** of the masts ?

CAPTAIN. They are two pieces of timber fitted on each side of the masts [from beneath the hounds to the upper end of the masts], and they serve to strengthen the masts in that part ; and in these are made fast those hounds wherein the ties do run. As also those knees which fasten the beakhead to the bows of the ship are called cheeks ; likewise the sides of any block carry the same name ; and so do the sides of a ship carriage for great guns.

ADMIRAL. Which are the **Hounds** ?

CAPTAIN. They are those holes in these cheeks by which they are fastened² to the heads of the masts, and wherein the ties do run, that hoise up all the sails.

ADMIRAL. What are these **Ties** ?

CAPTAIN. They are those ropes by which the yards do hang, and they carry up the yards when the halliards are strained to hoise the yards.

¹ *Sc.* Trucks.

² Butler has altered Mainwaring's ' which are fastened ' and made nonsense.

ADMIRAL. Describe these yards.

CAPTAIN. Every mast hath its **Yard** ; and they are those long pieces which are fashioned somewhat small towards the ends, and they hang cross-wise upon the masts ; and are hoised (that is heaved) up and down on the masts as cause requireth. And unto these yards are made fast all the sails of a ship ; and they carry their names according to the masts they are fitted for ; and so likewise do the sails that belong to these yards.

Now these sails (as all know) are those large pieces of doubled canvas which, when they are spread abroad, do catch the wind and so give way, that is, give motion to the ships ; and they all of them are cut out in fashion and proportion, answerable to the masts and yards, both in length and breadth, that they are made for ; except only the mizen sail, which is of a different form from all the rest, and is cut by the leech-wise as deep as that mast is long from the deck to the hounds ; and the sprit-sail, which is about the fourth part of the depth of the foresail ; or rather $\frac{3}{4} : 4$ to that foresail.

ADMIRAL. What is that which you but even now termed the **Leech** ?

CAPTAIN. It is the outward side, or outskirt of the sail, from the earing to the clew ; or (more particularly) it is the middle part of the sail, between both these, and this part is termed the leech.

ADMIRAL. Which is the earing ?

CAPTAIN. The **Earing** is that piece of the bolt-rope (which bolt-rope is that rope wherein the sail is sewed) which at the four corners of the sail is left open ; and it is round in the form of a ring, so that every sail hath at each corner an earing. And of these four earings, the two uppermost are put over the ends of the yards, which are

termed the yards-arms ; and by the earings the sail is at those two ends made fast unto the yard ; and into the two lowermost earings are seized (that is, made fast) the tacks and sheets ; and this in sea phrase is termed, bent to the clew.

ADMIRAL. Which is this clew ?

CAPTAIN. The **Clew** of a sail is that lower corner of it, which reacheth down to that part where the tacks and sheets are made fast (of which tacks and sheets farther shall be noted when we come to speak of the riggings of a ship in general), so that when a sail is made goring (that is, when it comes sloping off by degrees, and is broader at the clew than at the earing) it is then said to have a great clew ; and so on the contrary.

Now though a sail be cut out into a perfect square so that indeed it hath no clew at all, yet the lower end of this sail doth also carry the appellation of the clew of the sail ; so that a ship is said to spread a great clew, when she hath an extraordinary long yard, and by consequence much canvas in her sail.

ADMIRAL. What is that you call a **Cleat** ?

CAPTAIN. It is that wedge of wood which is fastened upon the yard to preserve and keep all the ropes from slipping from the yards in any of those places where these cleats are.

ADMIRAL. Which be those which you call the **Coats** of the masts ?

CAPTAIN. They are those pieces of tarred canvas which are put about the masts, at the partners, formerly described. And they are also put about the pumps, at the decks, that so no water may get down that way ; and these are also used at the head of the rudder.

ADMIRAL. Which be the **Grommets** ?

CAPTAIN. They are small little rings made fast

to the upper side of the yard with staples driven into the yard, and are of no other use but to make fast thereunto the caskets.

ADMIRAL. What be these **Caskets**?

CAPTAIN. They are small strings made of sennit and fastened to the upper part of the yard in the grommets; and their use is to fasten the sail to the yard, when it is to be farthelled up (that is, made up). And the biggest and longest of these are placed in the middle part of the yard betwixt the ties; and with these the bunt of the sail is farthelled up and so they are named the **Breast Caskets**.

ADMIRAL. Which are those you call the **Latchets**?

CAPTAIN. These are those small lines or cords which are sewn into the bonnets and drablers in the fashion of loops; and with these are the bonnets laced unto the courses. And this term of courses is given to the sails when they are alone of themselves, and without their bonnets laced unto them. And by these latchets also are the drablers laced unto the bonnets.

ADMIRAL. What are these bonnets and drablers?

CAPTAIN. The **Bonnet** is only an addition of a piece of a sail, made fit to be put into another. So that when seamen say that the ship hath her course and her bonnet abroad, their meaning is, that she hath that piece of sail added unto her course, which is called the bonnet, which before she had not nor ordinarily hath. Now the words of our art pertinent to this particular are:

Shake off the bonnet; that is, take it off.

Lace on the Bonnet; that is, put it on to the course. And thus in all respects is the drabler to the bonnet; and this drabler is only in use when

the course and the bonnet both are too shallow of themselves to clothe the mast.

ADMIRAL. When is the mast said to be **clothed**?

CAPTAIN. When the sail doth reach down to the gratings or hatches.

ADMIRAL. Of the bolt-ropes you spake even now ; but what are their appurtenances ?

CAPTAIN. The appurtenances belonging to these bolt-ropes are the **Cringles**, and these are small ropes spliced unto the bolt-ropes of those sails which belong unto the mainmast and foremast, unto which the bowline bridles are made fast ; and they are also in the nature of stays to hold by when the bonnet is to be shaken off.

ADMIRAL. And what are these **Bowline Bridles** ?

CAPTAIN. The bowline is a rope fastened to the leech of the sail ; and it is made fast to two or three or sometimes four several places thereof ; and thence have the name of the bowline bridles. Only the mizen bowline is fastened to the lower end of the yard.

And the words of art proper to these are :

Sharp the main bowline ; Hale up the main bowline ; Set taut the bowline. All which phrases are in use, when the bowline is to be pulled up harder ; or to speak more properly, when it is to be haled forwards on. And on the contrary when the word is : **ease the bowline : check the bowline** or **run up the bowline**, it is as much as to say let it out, that it be more slack.

ADMIRAL. What other appurtenances have you to the bolt-ropes ?

CAPTAIN. They are the **Bunt-lines** ; and these are made fast to the bottom of the sails, in the middle part of the bolt-ropes unto a cringle ; and so are reeved through a small block, seized to the

yards. And the use of these is to trice up the bunt of the sail, that so it may be farthelled up.

ADMIRAL. What is that you call a **Jury-mast** ? for this you mentioned not amongst the former masts.

CAPTAIN. When by the extremity of a tempest or violence of a storm, either the foremast or main-mast is blown overboard (that is, is broken or blown down and falls into the sea), then the use sometimes is to take the main yard, or the fore yard, and putting one of them into the step of the broken mast, and withal fastening it unto the partners, and fitting the mizen-yard or the like thereunto, it is fitted with answerable sails and ropes, and brought into the form and in the stead of the ruined mast ; and as a poor shift in case of necessity, is made to serve the turn of the lost mast, and thereby to give way and steerage unto the ship ; and this is termed a jury-mast.

ADMIRAL. What is the sea signification of the words steer and steerage, and what are the ways of direction conducing to the steering of a ship ?

CAPTAIN. To **steer** a ship is as much to say as to govern it by the use of the helm. Now a ship is steered at best when she is most kept from yawing (that is, from going to and again, or indenting in and out, in her way). And he is the best steersman that practiseth the least motion in using of the helm. And the ways of direction to steer by are principally three : the one, to steer by the land ; and that is, when approaching upon the shore, or sailing by it, or to it, within perfect ken (or sight), the man at the helm is directed to take his views either of some point of land, or some notorious mark on the shore ; and so to guide the ship just upon that part, or just from it, or by it.

The second way to steer is by the compass ; and

this is the most general way ; and it is done when the head of the ship is guided upon such points of the compass as best lead unto the appointed place or port.

The third way to this purpose is to steer by being conded ; that is to say, that the helmsman guide the ship and order the helm as he is directly bidden by some appointed to that purpose ; of which we have formerly spoken, as also of the words of art belonging thereunto.

ADMIRAL. Let us now return to the remnant of such particulars as appertain to masts and yards. And tell me, what that is termed a **Paunch** ?

CAPTAIN. Those mats made of sennit, or rope yarn, which are made fast to the main and fore yards, to save them from galling against the masts, are called paunches.

ADMIRAL. What is this **Sennit** ?

CAPTAIN. It is a line or string composed of rope yarn ; and for the most part consisteth of three, six or nine strings divided into three parts, and then plaited one over another, and beaten small and flat, with a mallet of wood. And the main use of this sennit is to serve all the ropes of a ship.

ADMIRAL. What is this serving of ropes ?

CAPTAIN. To **serve** any rope is to lay either this sennit or spun yarn, or rope yarn or any piece of canvas, or the like, upon a rope, and there roll it fast round about the rope ; and thereby preserve it from being galled in any part.

ADMIRAL. What be these spun yarns and rope yarns ?

CAPTAIN. **Rope yarns** are the yarns of any rope, when untwisted ; though most commonly these rope yarns are made of the ends of cables, half worn out ; and these cable ends are called

junks of cables. And they serve for many uses aboard of ships ; as to serve single ropes, or to make sennits or mats, and the like ; and likewise to make knittles, the which knittles are two of those yarns together, untwisted. They serve also to farthell, or make up, all the sails unto the yard-arms.

As for the **Spun yarns**, they are also a kind of rope yarns, whose ends are scraped and beaten thin ; and so are woven into the ends of others, and made out in length as occasion requires.

ADMIRAL. What do you seamen mean when you say your mast or yard is **spent** ?

CAPTAIN. When a mast or yard is broken down, by foul weather, or any other accident, the sea expression is that the mast or yard is spent. But if this come to pass by a shot from an enemy, then the word is, that the mast or yard is shot by the board.

ADMIRAL. What is it to **spring** a mast ?

CAPTAIN. When a mast is cracked (but not quite broken asunder) be it in any part whatsoever, as at the hounds, partners, or elsewhere, the saying is, the mast is sprung in such and such a place.

ADMIRAL. What is the slinging of the yards ?

CAPTAIN. The word **sling** is variously used in sea business, for there are slings to hoise up cask or any other ponderous things ; and these slings are framed of rope spliced into itself at either end, and so making an eye in the same place, as large as shall be found capable to receive the body of the cask or pack into it.

A second sort of slings there are, which are more extended in length, having a small eye at each end ; and the one eye is put over the breech of a great gun and the other cometh over the end of a crow of iron, the which crow they put into the

mouth of the gun, and by this means this great gun is weighed up and hoised at pleasure.

The third kind of slings is that which is here called the slinging of the yards ; and this is done by any rope or chain, wherewith the yards are fast bound aloft to the cross-tree and the head of the mast. And the use thereof is, that if the tie should chance to break or be shot in pieces in a fight, that the yard may nevertheless be preserved from falling down upon the hatches.

ADMIRAL. Have you not a yard called the **Cross-jack** ?

CAPTAIN. Yes, and it is a small yard, at the upper end of the mizen mast, under the top thereof, where it is slung ; and it hath neither halliards nor ties belonging unto it, as the rest of the yards have. And the use of this jack¹ yard, is to spread and hale out the mizen-top sheets.

ADMIRAL. You made some mention of the bunt of a sail before ; but you told not what it was.

CAPTAIN. This **Bunt** is to a sail, as the cod is to a net, being the very pouch, or bag of a sail ; and therefore all sails have this bunt, the better to catch and hold the wind. And the words of our art hereto proper are : **The Bunt holds much leeward wind**, that is to say, the bunt hangs too much to the leewards.

ADMIRAL. What implieth this word leewards ?

CAPTAIN. The word **Lee** in our sea-language is diversely taken ; as, by the lee, in general is meant that part which is opposite to the blowing of the wind ; and thus the shore which the wind blows upon is the lee shore. And to be under the lee of the shore is to be close under the weather shore ;

¹ An early instance of the use of this word as a diminutive in this sense.

that is, under the wind. And to put the helm *a-lee*¹ is to put it to the lee side of the ship.

As touching the lee latch, we spoke of it formerly.

A *leeward ship* is a ship not fast to the wind ; that is to say, a ship that will not sail so near the wind, nor make so good way in that posture, as she might.

To come *by the lee*, or to lay a ship by the lee, is so to bring her that her sails may lie flat against her masts and shrouds ; and the wind to come right on her broadside. Now the way to do this is, when all her sails are abroad, [to bear up the helm hard to the windwards,]² and to let rise the foretack ; and veer out the main sheet ; and take in the mizen sail, or at the least, to peek it up ; the which peeking up is called the spilling of the mizen.

ADMIRAL. What imports the word *veer* in your sea-language ?

CAPTAIN. To veer out a rope, is to put it out by hand, or to let more of it to run out. So that the word *veer* is generally used for the letting out, or the giving way to any rope, to run or pass out more in length than it was before ; and especially if any of these ropes be such as are used without board ; that is, without the ship.

But nevertheless this word *veer* is never used to any running rope, save only of the sheets ; and then it is said *veer out more sheet* ; which is as much as to say, let more of the sheet run out.

The word *veer* is also used, when the wind

¹ The earlier MSS. following Mainwaring, use the expression 'a-lee the helm' ; apparently this was growing obsolete.

² E reads 'the helm is born up hard to the leewards' ; an error carelessly introduced by Butler in attempting to improve on Mainwaring.

changeth from one point of the compass to another, and that suddenly, as in storms ; and then the saying is, the wind is veering, or the wind veereth.

Also when a ship being under sail hath her sheet veered out, the sea word is the ship goes veering ; that is to say, she goes at large, and so neither by a wind, nor before the wind, but as it were betwixt both ; and this likewise is termed quartering. The which word **quartering** is also used when a piece of ordnance may so be transferred that it will shoot in the same line or the same point of the compass that the ship's quarter beareth. Likewise when a ship saileth with quarter winds, it is said that she goeth quartering.

And thus we have gone through with, and described all the masts, yards and sails appertaining to a lusty ship of war ; and withal we have noted and set down all the words of art taken up in the use of them. We are now to proceed and to speak of that which is named the rigging of a ship, and of the ropes in general that belong unto it.

And first of all, it will be fit to explicate the sea word **rigging** itself ; that by the explanation thereof the following discourse may the better be apprehended.

By this rigging therefore is to be understood all the ropes whatsoever, that belong either to a ship's masts, yards or any other part about her ; although more particularly we say sometimes that her masts, or her yards, are rigged when she is furnished with all the ropes which belong properly and only unto them. Now in general a ship is said to be well rigged when the ropes she hath are well fitted, sized, and chosen ; as also when her universary

ropes, which are her two main shrouds, her tackles, crowfeet, and the rest, are all put up.

On the contrary a ship is said to be over-rigged when her ropes are too big for her ; and this is indeed a great hindrance and wronging of a ship in point of her sailing ; because a small overweightiness aloft hinders more this way than a far greater below, for it makes a ship apter to heel (that is as aforesaid, to hang on the one side) and hold her wind taut.

As for the word **Ropes**, it comprehendeth, in general, all the cordage due unto a ship ; in so much that the very cables themselves are styled good or bad ropes, accordingly as they are in goodness or badness ; and so the hawsers and the rest of them. Yet true it is, that there are some ropes to which this denomination is more peculiarly applied ; as to the **Entering-rope**, which is that which hangs at the ladder ; to the **Top-ropes**, and they are those which appertain to the tops ; to the **Bolt-rope** (of which more was formerly said) ; to the **Buoy-rope** (of which more shall hereafter be said) ; to the **Guest-rope** (of which also more hereafter) ; to the **Keel-rope** (of which likewise more formerly) ; to the **Bucket-rope**, which is that which is made fast to the bucket to let it down and draw it up ; to the **Rudder-rope**, which is a rope or strap reeved into the hole of the rudder near unto the head thereof ; and so through the stern-post, and both the ends thereof are spliced together ; and it serveth to preserve the rudder, lest it should chance to be beaten off if the ship should happen to strike on ground. And lastly this appellation of rope is given to a small rope seized cross over the ties, close at the ram-head ; so that if any one part of the tie should break, yet the remainder cannot run through the ram-head to endanger the yards ;

and in that respect this particular rope is also styled the **Preventer-rope**.

ADMIRAL. For the better understanding and clearing of this passage, you are to explain your sea terms here mentioned, which are those you called wind-taut, and the ram-head.

CAPTAIN. The **Ram-head** is a great block, with three shivers in it, into which are put the halliards; and at the head thereof are reeved the ties into a hole; and this block belongeth only to the main and fore halliards.

ADMIRAL. What is **wind-taut**?

CAPTAIN. Anything holding (that is, catching) the wind aloft is termed wind-taut; and in this sense over-weighty rigging, high ropes, and the like, are said to hold the ship wind-taut; which is as much to say that it makes her apt to stoop over much in her sailing in a stiff gale of wind.

Likewise when a ship rides in a main stress, her yards are brought alongst the ship, and the top-masts struck down; because otherwise they would hold too much wind or hold wind-taut as our saying is; so that the word taut in sea-language is as if one should say stiff; intimating that the top-masts and the yards are so stiff in the wind that they hold or catch too much of the wind.

ADMIRAL. You named the word **Halliards** even now, but told not which, nor what they were.

CAPTAIN. They are those ropes by which the yards are hoised; only the cross-jack, and the spritsail yards have no halliards; because they always remain slung. True it is that in small craft these halliards are in use at the spritsail yards.

ADMIRAL. What mean you by **small craft**?

CAPTAIN. This word craft, when it is appropriated to sea-language, signifieth not only all such lines and hooks as serve to catch fish; but all such

as Catches, Hoyes, Crays and the like sort of boats are termed small craft.

ADMIRAL. You are now to explain the proper and peculiar names of the residue of your ropes ; as those you call shrouds, sheets, tacks, and the rest of them.

CAPTAIN. The **Shrouds** of a ship are those ropes which come from both sides of the masts ; and the mizen, the mainmast, and the foremast shrouds have, at their lower ends, **Dead-men's-eyes**, as they are called ; and these are a certain kind of small block, wherein are made little holes, but having no shivers as other blocks have ; and through these holes, the small ropes called the **Lanniers** do run ; and these lanniers do fasten the shrouds to the chains ; which chains are made fast to the ship's sides. And these also have dead-men's-eyes in them ; and at their other ends the shrouds are fastened to the head of the mast, having their pendants, fore-tacks, and swifterns first put under them. And at this their upper part they are served with sennit, to keep them from galling against the mast. In the same manner also the topmast shrouds are made fast with dead-men's-eyes by lanniers unto the **puttocks**, and with those plates of iron which there serve for that purpose.

And the words of art or command here are : **ease the shrouds** ; that is, slacken them ; **set taut** the shrouds ; that is, set them stiffer.

ADMIRAL. What are these **Pendants** you speak of ?

CAPTAIN. This word pendant, when it is a sea word, is taken in a two-fold sense ; as first for the long streamers which are hung out at the yard-arms, and sometimes at the heads of the masts, either for a show and gallantry, or to distinguish

squadrons in fleets ; and of these we shall have occasion to enlarge ourselves hereafter. Secondly, by the name of pendant (as in this place) is to be understood those short ropes which are made fast at the one end, either to the heads of the masts, or to the yards, or to the clew of a sail ; and they are in largeness according to the place where they are used ; and at their other ends they have a block with a shiver, whereunto a running rope may be reeved. As for example, the pendant of the tackle¹ is made fast to the head of the mast ; that is, to the top of it ; and the pendants of the back stays are fastened and do hang down on the insides of the shrouds. And indeed all the yard-arms, excepting the mizen, have these pendants, into which the braces are reeved ; and by them they are fully and perfectly distinguished.

ADMIRAL. What are those you term the **Tackles** ?

CAPTAIN. These are small ropes which run in three several parts ; and have either a pendant with a block fastened unto them, or a lannier ; and at the other end they have a small block and a hook to catch hold withal ; thereby to heave, that is to take in, any goods or ponderous bodies into the ship.

Now of these tackles there are sundry sorts ; as the boat's tackles, which stand, the one on the mainmast's shrouds, and the other in the foremast's shrouds. And they serve to hoise in the boats, and any other things of that nature.

There are also certain tackles which appertain to the masts ; and these are in the nature of shrouds ; to keep the masts from straining. There are likewise the Gunner's tackles, by which the great guns are hoised in and out of the ship.

¹ E has ' tack.'

There is also a winding tackle, of which we spake before.

As for that part of a tackle which is haled upon, as the phrase is, it is called the **Fall**. But that end of it, whereunto the block is seized, is named the standing part.

True indeed that the word is also used in some other acceptations ; as a ship is said to fall off when, being under sail, she keepeth not so near the wind as is pointed out for her course. And when a ship is said to have a fall, or many falls, the meaning is that there are some risings or layings up of some parts of her decks, higher or lower, than the rest of the main body of her ; and this is directly contrary to that which in sea-language is termed flush, or flush fore and aft.

ADMIRAL. Which are those you term the **Swifters** ?

CAPTAIN. They belong to the main and foremast, and serve to secure and succour (that is, relieve or strengthen) the shrouds ; and to keep stiff the masts. And these have their pendants made fast unto the shrouds at the head of the mast, with a double block, through which is reeved the swifters ; and at the standing part they have a single block with a hook, which is hitched in a ring to the chain-wales ; and being haled, do help to strengthen the mast. As for the word **swifting**, it is used in sea language, when ships are either brought aground or brought to a careen ; for then the use is to swift the masts, and so to ease and strengthen them. And this is done by laying fast all the pendants of the swifters and of the tackles, with a rope, close unto the masts ; and as near unto the blocks ¹ as may be, and then to carry forwards the tackles and

¹ E reads, incorrectly, ' masts.'

so to bowse them down (that is, to hale them down) as hard and taut as is possible. And the sea word of command in this work is **Hoo, bowse men** ; for the haling upon the tackle¹ is termed the bowsing on the tackle.¹ And this is done not only to ease the mast, but also to keep it from rising out of the step.

ADMIRAL. What is the sea sense of the word **ease** ?

CAPTAIN. This word is used at sea in the same sense that the word slack is used ashore ; for when seamen would have any rope slacked they say ease it : as, **ease the bowlines** ; or, **ease the sheets** ; but when the tack is to be slacked the phrase is, **rise** ² **the tack**.

ADMIRAL. Which is this **Tack** ?

CAPTAIN. The tacks are great ropes, having a wale-knot at one end, which is seized into the clew of the sail, and so is reeved through the chess-trees ; and it comes in at a hole in the ship's side. And the use hereof is to carry forwards the clew of the sail, and so to make it stand close by a wind ; in which case the main tack, fore tack and mizen tack are brought close aboard and overhauled, as forwards on as may be, [and so are the bowlines on the weather side] ; the lee sheets are haled close aft, only the lee sheet of the foresail is not so close unless the ship gripe ; the lee braces of all the yards are braced aft ; and the topsails are governed as the other sails are whereunto they belong. And these sails being thus ordered and trimmed, a ship is said to stand, go, or sail, close by a tack ; that is, close by a wind.

Now the words of command for the acting of this are these : **Hale aboard the tack**, that is,

¹ Incorrectly 'tack' in the MSS.

² 'Let rise' in M.

bring it down close to the chess-trees ; **ease the tack**, that is, give it liberty to go out ; and this tack is belayed either to the bitts, or else there is a peculiar kevel¹ belonging to the tacks. And these tacks do only appertain to the mainsail, foresail and mizen ; and they are always cut out and made tapering.

ADMIRAL. Explain these words wale-knot and tapering, which you mentioned but now.

CAPTAIN. There are two kinds of knots used at sea : The one is called a **Bowline knot**, and this is so knit that it will neither slip nor slide ; and with this knot the bowline bridles (before mentioned) are made fast to the cringles ; and it is also used in some other services. The other knot is that which is here named the **Wale-knot**, and this is a certain round knot or knob, composed of the three strands of a rope, so that it cannot by any means slip or budge. And with these wale-knots, the tacks and topsail sheets, and the stoppers, are made fast ; with some other rope besides.

As for the word **tapering**, it is when any rope or anything else is framed bigger at the one end than at the other, as the tacks, which are made tapering ; and this makes them to purchase (that is, to draw) apace ; and withal it saves a great deal of stuff, by reason that the rope at one end bears little or no stress. A great gun also is said to be **taper-bored**, when the bore is wider at the mouth than towards the breech. And though some are of opinion that such kind of pieces reverse not so much as others, and in that regard are fittest to be used on ship board, yet is there much danger in them, if the shot shall be measured and fitted by the mouth of the piece, for it must necessarily

¹ ' Chevill.'

follow that those shot cannot pass home at the breech, or chamber of the gun, by which the breaking of the piece may be occasioned.

ADMIRAL. You spake not long since of a piece of rigging which you called the **Puttocks** ; shew me now what they are and of what use.

CAPTAIN. They are those small shrouds, which pass from the shrouds of the mainmast, foremast and mizen mast, as also to the topmast's shrouds. And if the topmasts have any top-gallant tops, they are to pass from the shrouds unto those tops also ; for otherwise when the shrouds come near to the masts, they fall so much inwards that none can get up by them into the tops, that is to say into the caps of the masts ; and therefore these puttocks, at their lower ends, are seized to a staff, there made fast unto the shrouds, or at the least they are made fast to the shrouds themselves, or to some other rope, which also is seized to a plate of iron, or to a dead-man's-eye ; to which the lanniers of the foremast's shrouds do also come.

ADMIRAL. What mean you by that, which formerly you called the **Backstays** ?

CAPTAIN. All masts, topmasts, and flag staves have stays ; excepting only the sprit-sail topmast. The stay to the mainmast, which is called the mainstay, is made safe by a lannier to a collar which comes about to a knee, belonging to that head. The main-topmast stay is made fast into the head of the foremast by a strap and a dead-man's-eye. The main-topgallant mast's stay is fastened to the head of the fore-topmast. And the fore-topmast, and the masts belonging to it, are in the same manner stayed at the bolt-sprit, and sprit-sail topmast. And these stays do likewise help to stay the bolt-sprit itself.

The mizen stay comes to the mainmast, close by the half deck ; and the topmast stay comes to the shrouds with crow feet.

Now the use of all these stays are to keep the masts from falling aftwards, towards the poop. [And thus much for the stays in general. As for the backstays of all masts which have them (which are only the mainmast and foremast, with the masts belonging unto them), these go down on either side of the ship, and serve to keep the masts from pitching forwards, or overboard.] ¹

ADMIRAL. Which call you the **Braces** ?

CAPTAIN. They are ropes belonging to all the yards, save only the mizen. And to every yard belong two braces, and they have a pendant seized to the yard's arms ; and at the end of the pendant there is a block through which that rope is reeved, which is termed a brace. And the use hereof is to square the yard (that is to say, to set it square) ; and to traverse the yard (that is, to set it any way overthwart) ; and to right the yard (that is, to bring it right). Now all these braces come aftwards on ; as the main brace to the poop ; the main topsail brace to the mizen top, and so to the main shrouds ; the fore-topsail brace, down by the main stays, and the main-topsail stays ; and so of the rest. Only, the mizen bowline serveth for a brace to the yard ; but the cross-jack's braces are brought forwards on unto the main shrouds, whensoever the ship is to sail close by a wind.

ADMIRAL. What is that you term **Careen** ?

CAPTAIN. A ship is said to be brought to a careen when (after the most part of her provisions,

¹ This paragraph, which alone answers the question, appears in the earlier MSS. but is omitted in **E**. Probably it was inadvertently omitted by Butler in copying from **D**.

victuals, and lading being taken out of her) there is then laid by her side some other ship, by which she is haled down on the one side, as far as cause requireth ; as sometimes to the third, fourth, or fifth strake. Likewise when a ship lieth, or inclineth much to any of her sides, in her bearing of sail, she is said to sail on the careen.

ADMIRAL. What mean you by the **Graving** of a ship ?

CAPTAIN. This is when a ship is brought on ground, of purpose to burn off the filth and foulness, that cleaveth to her sides without board, the which burning is done with reeds, broom, or the like ; and being thus burned, she is then to be newly payed.

ADMIRAL. What mean you by being payed ?

CAPTAIN. The word **Pay** in our sea tongue is diversly taken ; sometimes it is all one with parcelling, the differences only being that parcelling is performed when a little canvas, about a hand's breadth, is laid upon the seams of a ship newly caulked ; and the canvas thus put upon the seams laid over with tar ; whereas paying is only used when the seams, being without canvas, are laid over with pitch. The second difference, between paying and parcelling is that paying is ever done with pitch ; parcelling always with tar.

But sometimes this word Paying is in use when a ship being to tack about, all her sails are brought a-backstays (that is to say are flatted against the masts and shrouds) for then the sea-saying is the ship is payed.

As for the word paying, as it is here mentioned, it is meant, when in the graving of a ship, after her side (that is the filth upon her side) is burned off, there is laid on some fresh stuff, as either

tallow or soap, or, which is best, train oil, resin and brimstone mixed together ; and then the ship is said to be newly payed.

ADMIRAL. What is that you call the **washing** of a ship ?

CAPTAIN. This washing is only used at sea, when neither the parcelling, paying nor graving can be practised. And it is acted by bringing all her guns to the one side of the ship, and causing the ship's company to hang upon the yards on that side also, that so she may be made to heel over that way ; and then the other side is to be scraped and washed, so much of it as appeareth above water, which will be sometimes above five or six inches in depth. And this is only to be done at sea, and in very fair weather, and in a deep, calm and smooth water.

ADMIRAL. Even now you spake of **Caulking** ; describe it, what it is.

CAPTAIN. To caulk is to drive oakum, spun-yarn, or the like, into all the seams, trenails and rends of a ship, in every part of her ; and the way and best security in doing hereof was fore-mentioned in our first day's discourse, page 21st.

ADMIRAL. Of spun-yarn you also spake ; but what is this you here term **Oakum**.

CAPTAIN. It is nothing else but old ropes untwined, and so pulled out as it were into loose flax a second time ; and whensoever any fresh tow or flax is used to this purpose, it is also called oakum or white oakum.

ADMIRAL. And which are those seams, trenails and rends into which this oakum is to be driven ?

CAPTAIN. The **Seams** of a ship are the meetings together of the planks. The **Rends** or **Rents**

are slits or clefts in a plank. The **Trenails** ¹ are (*quasi* tree-nails) nails made of a tree, being long wooden pins of a hard and well seasoned oak ; and with these are fastened the planks to the timbers ; and all of these have oakum driven into them and then are payed (as aforesaid) to keep them from leaking.

ADMIRAL. And what is this **leaking** ?—for though in our first day's discourse we spake of the finding out of leaks, yet there was not any full explanation of the extent and signification of the word, especially when used at sea.

CAPTAIN. The signification of the word is sufficiently known to landmen as well as to seamen ; but in regard that there is no ship so tight (that is so free from taking in of water) but that by labouring in the sea (that is by working or tumbling in the sea), nay even in her riding in a harbour, some water will get into her hold ; therefore in sea language, a ship is properly said to have a leak when she makes more water (that is, takes in more water) than ordinarily she useth to do, or should do. Now the causes of these leaks are either the starting out of some trenails, or the opening of some of her seams, or the eating of worms through her planks, or the receiving of some shot in a fight, under water, or the like.

And the sea phrases when a ship hath a leak, or when she takes in over-much water are : that the ship hath **sprung a leak** ; or that she **maketh much water**.

ADMIRAL. I well enough understand the word calm ; but what implieth your sea word, to becalm, or becalming ?

CAPTAIN. **Becalm**ing is when anything doth keep off or keep away the wind from a ship ;

¹ ' Treenells.'

and thus is one ship said to becalm another when she comes up with her, on the weather side. And so when the shore keepeth off the wind from a ship, it is said that the shore becalms her. This, I say, is the proper signification of the word becalm or becalming with us at sea ; though nevertheless a ship is said to be becalmed when no wind blows abroad, or when she finds no wind to fill her sails.

ADMIRAL. What is that you term the winding, or rather wending, of a ship ?

CAPTAIN. The **winding** of a ship is to bring her head about round ; and this may be done either by towing of her with her long-boat, or shallop, or barge ; or if she be but a small vessel by putting out some oars, out of the hawses, or stern ports. A ship also is said to wind or wend up when she comes to ride by her anchor.

Also when a ship is kenned (that is, descried) afar off under sail, the sea word is, **how winds she** ; that is, which way doth she lie with her head. Likewise, when upon the changing of a tack, they would know how the ship lies that way ; or when they would be informed how a ship at sea doth lie in her course or way she makes, the demand is, how wends the ship, which is as much as to ask, how the head of the ship doth then lie, and upon what point of the compass.

ADMIRAL. Let us now return to our sea ropes, and tell which rope is that which you term a **Collar**.

CAPTAIN. It is that which is made fast about the beakhead, whereunto the dead-man's-eye is there seized, to which the mainstay is made fast. But besides this there is also another rope called the collar or garland ; and it is made fast about the mainmast head, and serveth to preserve the shrouds from galling.

ADMIRAL. What mean you by a **Strap** ?

CAPTAIN. That rope is named a strap, which is spliced about any block: that so by it the block may be fastened to any place where cause requireth, by the eye made in the strap at the arse of the block; that is, at the lower part of it.

ADMIRAL. Which are those ropes you sundry times mentioned before by the name of **Crow's feet**?

CAPTAIN. They are those small lines or cords which are divided by the holes in a dead-man's-eye, into six, ten, or more parts, and so are left hanging to make the ship to shew full of small rigging; and commonly they are placed at the bottom of the backstays that belong to the fore-topmast, mizen-topmast, and gallant-topmast.¹

ADMIRAL. What are those ropes you term the **Puddings**?

CAPTAIN. They are ropes nailed to the yard's arms, of the main and fore-yards, and are close to the ends of them; and so in three or four other distances, severed one from another, upon each yard arm. And their use is to save the robins² from galling asunder upon the yards; when the top sheets are haled home.

Those ropes also, which are wrapped about the rings of the anchors, to preserve the clinch³ of the cable from galling with the iron, is called the pudding of the anchor.

ADMIRAL. What are these **Robins** you spake of?

CAPTAIN. They are small lines reeved into the eyelet holes of the sail that are uppermost and next unto the yards. And the sea phrase here is **make fast the robins**, when they would have them

¹ Mainwaring reads 'top-gallant masts.'

² Robands.

³ E has 'chincke.'

tied ; for seamen do constantly and generally use the phrase **make fast**, in lieu of tying.

ADMIRAL. What is that which even now you called the **Clinch** of the cable ?

CAPTAIN. It is that part of the cable which is seized fast about the ring of the anchor.

ADMIRAL. Enlarge yourself, concerning cables in general, and describe them.

CAPTAIN. **Cables** have several distinctions, and of several degrees ; and are differenced by the appellations of the first, second, and third cable according as they are in bigness. And (as all men know) they are those great main ropes which, being made fast to the anchor, do hold fast and keep the ship from driving, when she rideth by them. And our words appropriated in the use of these ropes are as followeth : The cable is well laid (that is, well made or twined) ; **serve the cable**, or plat the cable, which is as much as to say bind it about with ropes or clouts to keep it from galling and spoiling in the hawses ; **splice the cable**, that is, fasten two cables together with a splice ; **coil**¹ **the cable**, and this is only to roll it up round, upon the deck or elsewhere ; and when a cable is thus rolled up in rolls, having one roll laid upon another, it is termed **cable-tier** ; **pay more cable**, and this is when as an anchor and cable fastened together, being carried out by the boat, to be let fall into the sea, it is required that more of the cable be handed or put out of the ship ; for then the phrase is pay more cable, that so the boat may row with the more ease ; and when this cable is thus to be handed out apace, the word of direction is, **pay cheap** ; also **veer more cable**, is to put or hand out more of the cable. And a **Shot of cable** is when two

¹ ' Quoye.'

cables are spliced fast one to another. And the cable is said to be put out with messengers, when a small jeer rope is belayed upon a cable.

ADMIRAL. You have often used the word splicing ; tell me now what it is.

CAPTAIN. **Splicing** is nothing else but the making fast of ropes one into another, by opening the strands or twists at the end of both the ropes ; and then with a fid to lay every strand in order one into another. Also when an eye is to be made at the end of any rope, the ends of the strands being severed, twists are, with a fid, drawn into the ends of the other rope's strands, and this is called a splice. Now of these splices there are two sorts : The round splice which is (as afore-said) the interweaving of the ends of the two ropes, one into another ; and the other which is (barbarously or rather bawdily) called the cunt-splice, and this is when the strands of either rope are put one into another, a good distance off from the very ends, and those very ends left out unspliced ; by which work is fashioned a long slit, the which with these rude name-coiners begat the name.

ADMIRAL. What is that you here called a **Fid** ?

CAPTAIN. It is only a piece of iron made tapering and withal sharp at the end. But there are also fids of wood, which are much bigger than those of iron ; though both are of one and the same use. That pin likewise, which is in the head of the topmast, and which beareth it upon the chess-trees, is called a fid.

There is also a certain kind of hammer called the fid-hammer, having a fid at the one end, and a hammer at the other ; together with a head and a claw, wherewith to drive in and pull out a nail.

ADMIRAL. You made mention even now of these sea words quoil the cable ; but you expressed not what a quoil of ropes is ; nor what it is to quoil.

CAPTAIN. A **Quoil** or **Coil** of Ropes is, when ropes are laid in a round, one flake over and upon another. And a coil of cable is, when a cable is laid in the same manner ; and when the one half of these cables, or ropes, are cut or taken away, the remainder left is called half a coil of rope or cable.

So that when it is said : coil up, the meaning is that any of these ropes be laid in round flakes, the one flake over the other ; that so, when occasion requires, these ropes may run smooth and clearly out, without any **knecks** (that is, twisting) or **kinks** (that is, doublings). And also may lie handsomely together, without taking over much room in the ship.

ADMIRAL. What mean you by **Flakes** ?

CAPTAIN. They are only those several circles or rounds of the ropes or cables that are quoiled up round as aforesaid ; so that when a cable is veered out, that is put out at length, it is demanded how many flakes are left ; which is as much as to say, how much of the cable is veered, or left unveered.

ADMIRAL. When is a cable said to be **bent** ?

CAPTAIN. A cable is said to be bent when it is seized and made fit and fast to the ring of the anchor. But to bend two cables together is to tie them together, and to make their own ends fast upon themselves.

ADMIRAL. What is that you call a **Bight** ?

CAPTAIN. It is the compassing or bringing about of a rope or cable. And to hold by the bight is to hold by that part of the rope which is rolled up and quoiled up.

ADMIRAL. What is the **Bitter** of a cable ?

CAPTAIN. It is the turn of the cable about the bitts ; that so it may be veered out by little and little at ease. And when a ship is thus stopped by the cable, she is said to be brought up to the bitter. And the **Bitter end** of the cable is that which is always at the bitts when the ship is at an anchor. And then the sea language is, bend it to the bitter end.

ADMIRAL. What is that which your seamen call a **Bongrace** ?

CAPTAIN. It is a certain frame or composure of old ropes or junks of cables, and it is used to be laid out at the bows, stems, and sides of ships, to preserve them from mighty flakes of ice, when ships are to sail far northwards or southwards.

ADMIRAL. What ropes are those termed the **Brails** ?

CAPTAIN. They are small ropes reeved through blocks, on each side whereof are seized the ties some distance off from the yards ; and so they come down before the sails and are fastened to the cringles, at the skirt of the sails ; and their employment is to hale up the bunt of the sail, when the sail is farthelled across. And here the words of command are : **Hale up the brails**, or **Brail up the sails** ; both which phrases imply one and the same thing, and is as much as to say, let the sails be haled up, that they may be farthelled or furled. And this furling of the sail is when they being haled up to the brails, they are to be wrapped up close together, and so with the caskets tied fast to the yards. And those small lines made fast to all the topsails, top-gallant sails, and mizen yard arms, are termed the **furling lines** ; of which the mizen hath only one, but all the rest have one on either side, and by these those sails are

furled. As for the topsails, they have not their bunts bound up to their yards as the main and foresails have, but only laid upon their tops, and so bound fast to the heads of the masts; and this is termed the stowing of the topsails.

ADMIRAL. What are the **Caskets**?

CAPTAIN. They are small strings made of sennit, and are fastened to the upper part of the yards in little rings named grommets. And their use is to make fast the sail to the yard, when it is to be farthelled up; and the biggest and longest of these are bestowed in the just middle of the yard betwixt the ties; and they are termed the breast caskets.

ADMIRAL. You formerly made mention of a stern-fast; but what is that you call a **Breast-fast**?

CAPTAIN. As the stern-fast is firmed to the stern of the ship, so this breast-fast is a rope fastened to some part of a ship forwards on; and it serveth to hold fast the ship's head to a warp or the like.

ADMIRAL. What mean you by a **warp**?

CAPTAIN. To warp up a ship, is where there is a hawser, or any other rope sufficient to hale up a ship, with an anchor bent unto it, and laid out towards that part or place whither the ship is to be brought, that so by it she may be haled up thither. And this is principally practised when a wind is wanting to carry the ship away into any such place. And this work in our sea tongue is termed the warping up of a ship.

ADMIRAL. Which are those ropes you call the **Catharpings**?

CAPTAIN. They are small ropes running in small blocks, from one side of the shrouds to the other, not far from the decks. And they are employed to force the shrouds, and so to make

them taut, for the easing and safety of the masts. And they are only used in the main shrouds ; unless it be at the setting on of the puttocks of the shrouds, where they run not in any block, but stand fast and fixed.

ADMIRAL. What mean you by the **chafing** of a rope as your phrase is ?

CAPTAIN. Chafe or chafing at sea, or rather in sea phrase, is when any rope is galled or fretted, or when any rope rubs against anything.

ADMIRAL. What do you mean by a **Ship of charge** ?

CAPTAIN. By a ship of charge we mean a ship that draweth much water, that is, swims deep in the sea ; and sometimes an unwieldy ship ; that is, a ship which will neither wear¹ nor steer, as the sea words are, is accounted a ship of charge because she is a ship that requires great care to be had of her, and may incur much hazard and danger. As for the word Charge, every officer's peculiar place in a ship is called his charge, as at land.

ADMIRAL. Since you are again fallen upon yours of sea art, tell me what the full extent of the sea word **Chase** is.

CAPTAIN. To pursue or sail after a ship to overtake her is, as at land, to chase her. But that which is termed a **stern chase** is when the chaser followeth the chased just astern of her, and directly upon the same point of the compass. And to lie with a chased ship's forefoot in a chase is to go or sail the nearest way to meet with her, and so to cross her in her way. As for those guns called the **Chase guns** in a ship, they are those which lie right aft ; only when it is indefinitely said that a ship hath a **good chase**, it is meant

¹ ' Waire.'

that she hath many guns which lie forwards on ; and that is when she is so built that she can carry many guns, to shoot right forwards. And when a ship's guns lie just in the same manner, but the quite contrary way, then the saying is that the ship hath a good stern chase.

ADMIRAL. What rope is that, which is termed the **Clew-garnet** ?

CAPTAIN. It is a rope made fast to the clew of a sail (of which clew we have spoken formerly) and from thence it runs in a block, which is seized to the middle part of the yard. And the use thereof is to farthell up the mainsail and foresail.

ADMIRAL. What difference is there between the clew-garnet, and the clew-line ?

CAPTAIN. The **Clew-line** is the same to the topsails, top-gallant sails, and spritsails, that the clew-garnet is to the other.

ADMIRAL. What line is that, which you call the **Deep-sea-line** ?

CAPTAIN. This is a long, small, line with which is fathomed and found the depth of the water, when the ship is out of sight of land ; and this is termed sounding or to sound ; and the reason of the doing of this is that the coast may be known that the ship approacheth unto, by the view of the ground in the bottom of the sea in that place where the ship then is ; and some examples hereof were particularised in our first day's discourse, where we spake of the office and duty of the master of a ship. Now to this end that this ground may be found and the condition thereof and quality made evidently perceptible, there is a weight of lead framed like a plummet, which is called the deep-sea lead, and this is made fast to the one end of the foresaid line and, by it, it is carried down into the bottom of the sea ; and

upon the lower, broader, and heavier end of this lead is laid on some white tallow, the which bringeth up upon it whatsoever kind of sandy, shelly, or the like ground it falleth upon; and by the differences of the depth and colour of the ground or sand, and the observations made thereupon, is the coast of the country guessed at, that the ship draweth nigh unto, as was particularised in our western coast of England, in our first dialogue [p. 30]; and withal the distance may be known from that coast. And if it fall out that no sand at all be found out nor brought up upon the tallow of the lead, it is hereby known that the ground is oozy, and then instead of the tallow there is made fast a white woollen cloth, to the same part of the lead, and upon it is put a small quantity of the foresaid tallow; the which being thus let fall, doth in the same manner bring up all kinds of oozy grounds, as the tallow alone did the sandy; and by it are raised the same kind of conjectures as were with the tallow alone, by the sandy or shelly ground.

ADMIRAL. It is obvious to every man's understanding what the sandy and shelly grounds are, but what manner of ground is that you here term oozy?

CAPTAIN. **Oozy ground** is nothing else but fast¹ slime and muddy ground; and this is but bad ground for a ship to ride in at an anchor, in any stress of weather, by reason that the anchor cannot hold firm, but (as the sea phrase is) will come home. And withal this oozy ground is held to be very bad in regard that it rots the cables; and therefore is as much as may be avoided, save only when a ship is to be brought on ground, and especially when she is to lie so for any length of

¹ Earlier MSS. read 'soft.'

time, because she will lie in it both easy and safe, and will soon dock herself therein ; but withal it is subject to rot her planks and to spoil all the oakum within her seams.

ADMIRAL. What mean you, by a ship's docking of herself ?

CAPTAIN. Of docks of this nature there are two kinds : A **Dry dock**, which is made up with flood gates to keep out the tide and let it in at pleasure ; and in these dry docks are ships built and repaired, and herein they lie and rest without any danger.

The other is called a **Wet dock** ; and this is to be found in any creek or harbour, where a ship may be laid, out of the tide's way upon oozy ground ; in which ground when a ship hath made herself by her ponderousness a hollow place to lie in, she is said in sea language to have docked herself.

ADMIRAL. What is that in sea language which you call a **Cradle** in a ship ?

CAPTAIN. This is a framed piece of timber or wood, brought up and raised all alongst the outside of a ship by the bilge when she is in a dry dock ; and it serveth to launch a ship with the more security, out of this dry dock. And in some parts these cradles are also used for the same cause, when any of their great ships are brought only to be trimmed ; and they are trimmed in these cradles.

ADMIRAL. What imports your word **Launch** ?

CAPTAIN. This word amongst seamen is used instead of putting out, or in carrying out ; as launch the ship out of the dock, or quay,¹ is to put her out from those places, where she was before, into the channel or sea, that so she may float ; that is, swim.

¹ Key.

Seamen also say : Launch the boat ; launch out or in the davit ; launch out the capstan bars ; and all this is no more than to command to have them put out.

But in another sense, when a yard is hoisted up high enough, or that the topmast is as lofty as it can go, the sea-saying is **Launch ho** ; which is as much as to say, hoise no more.

Also in the stowing (that is laying in) of any thing into the hold of the ship ; the sea word is, **launch aft**, or launch forwards on.

Likewise when the men at the pump are in pumping, and that the pump sucks (that is, brings up no more water) then the word of call is **Launch ho** ; that is, pump no more.

ADMIRAL. When you, not long since, discoursed about the sails of a ship in general, you did not mention what a **Drift sail** was.

CAPTAIN. And well I might do so ; for this is a sail under water, as the rest are above water, and it hath sheets fastened unto it, as well as the other sails ; and by them the use is to veer out this drift sail, right ahead of the ship, upon a sea in an extremity of foul weather. And it is done to keep the ship's head directly upon the sea, that is to say here, the billow of the sea. It is also useful when a ship drives with the current to hinder or make her drive the slower by the use of this drift sail ; and it is generally practised by fishermen.

ADMIRAL. When is a ship said to **drive** ?

CAPTAIN. A ship is said to drive when, an anchor being let fall (that is, put overboard) it doth not hold the ship so fast but that she falls away with the tide or wind. To remedy which, more cable is to be veered out ; that so the anchor may have more time to fasten in the ground. Also

when a ship is a-hull or a-try, the sea saying is that she drives to leewards, or (as it may fall out) that she drives ashore.

ADMIRAL. To understand this passage the fuller, it is necessary that you speak somewhat, nay at large, of **Tides** in general.

CAPTAIN. Indeed it is one of the principal parts requirable in a good mariner, and especially frequenting our English coasts where the tides are both great and various, to know his tides and thoroughly to understand how they set from point to point ; and withal to distinguish the difference of those in the open seas, and the largest channels, from those near the shores, and in creeks, and rivers. In which regard I shall not only speak of the acceptation of the word Tide but of their seasons and motions, uncertainties of them in some parts ; and the varieties of opinions about the natural causes and original of them.

ADMIRAL. I pray do so, for this falls properly within the limits of our marine discourses.

CAPTAIN. It is then first of all to be noted that the globe of the world, as it makes a perfect sphere, is divided by the horizon¹ and meridian into four quarters ; of which that quarter which is between the east horizon and the noon meridian is termed (when spoken with respect to the motions of the sea), the flowing quarter. The second quarter, which lieth from the noon meridian to the west horizon, is called the ebbing quarter. The third quarter, being from the west horizon to the midnight meridian, is also allowed for a flowing quarter ; as the fourth quarter, from the midnight meridian to the east horizon, an ebbing quarter. So that in the total there are two flowing quarters

¹ He appears to be thinking of the horizon ring of a terrestrial globe.

and two ebbing. Now experience shows that as the Sun or Moon begin to be in any of the two flowing quarters, as they approach to their meridian altitude, so the sea increaseth till it come to a high flood. And on the contrary, as any one of these great lights declineth to the west so the water decreaseth and falleth to an ebb.

So that in the conjunction or new of the Moon, when these luminaries are both of them carried in one and the same flowing quarter and ebbing quarter, the floods and ebbs are then very great ; likewise in the opposition or full of the moon, these two lights, though carried in opposite quarters, yet are they then also of the same operation upon the sea, because they are both in flowing quarters, though several ones, and so produce the same effect. But on the contrary, in a quadrate aspect, or quarter age of the Moon, when the Moon is carried in a flowing quarter and the Sun at the same time in an ebbing, then do the tides grow lower and lower accordingly.

Now this we find to be punctually true, in an open and enlarged sea ; but where a river or inlet, that ebbs and flows, runs many miles up into the land, and withal maketh many windings and meanders by the way, it must of necessity follow that much of the certainty of this rule is lost, and to be considered to fall out either sooner or later, nearer to the rule, or farther off to the punctual computation, according as the distance and impediments are which interpose before there be an attainment to the due place of calculation. And the exact distinguishing of this particular, is indeed the main point conducive to the perfection of an able pilot, and especially for our English coasts. And whereas this motion of ebbing and flowing is found little or nothing in

some seas, some of the learned ascribe it to the freshness or want of salt in those seas, but is not found so by the taste ; some to the crassitude and thickness of the water there ; others to the thinness of it. And others there are which will have it to be occasioned by the extreme depth of water in those parts ; others to the narrowness of channels.

Neither is there less variety of opinions concerning the natural causes of this flux and reflux of the sea in general. For the Stoics (ridiculously poetical in this particular) will have the whole world to be a living creature, whose nostrils they place in the sea and so by its drawing in of breath and putting it out, this motion (say they) is occasioned. Apollonius was of opinion that certain spirits, either above or under the water, did it. Timæus thought it is acted by the violent access of rivers. Plato, by the swallowing up of the sea into some gulf. Aristotle's opinion is so obscure, that what is found from him, touching this point, is rather thought to be imposed, than to be his own ; and besides it is variously related. For Plutarch sayeth it was that many windy exhalations occasioned it ; Cæsalpinus, on the other side, relateth that his opinion of this motion was that it was originated from a double cause ; the one of the multitude of rivers, by forcing in a great force of waters into the sea ; the other by the liberation of the sea itself, as being often turned from one side to another, the which in so great a vastness is seemingly but little, but in straits and narrow places appears much greater. And as for Cæsalpinus his own opinion, he delivereth it in plain terms, that this motion of the sea is originated by the circular motion of the earth, the which (saith he) the water cannot so absolutely

follow, but must needs be driven backwards and forwards ; for being of a moist nature, whilst the earth is carried from the air, about it, the water is somewhat left behind ; whereby this tiding too and again, is caused. And Seleucus consenting with Cæsalpinus in the motion of the earth, addeth that the Moon is turned round upon its axle-tree, with a contrary motion to that of the Earth's ; and that from this proceedeth the ebbing and flowing of the sea.

True it is, that the opinion commonly defended in the schools of natural philosophers is that this motion of tides is to be ascribed chiefly, if not only, to the moon, as the principal cause. And yet some of these, though they admit the Moon to have her operation in this effect, yet join they other causes with it besides ; as the Sun, which vivificates and stirs it up to action, by its original and inbred heat ; the more also by cherishing and preserving it ; and the nature of the sea itself, that is to say flucidity¹ derived from the radical and first moisture, and the saltness drawn from the original and inbred heat thereof ; that being most subject to the dominion of the Moon ; this, to that of the Sun. This, I say, is the most general swallowed opinion of all others, and held as most probable concerning this so great a secret of nature.

For mine own part in regard, that even this opinion as well as any of the rest, suffers under many objections and exceptions, and gives not a general satisfaction ; and especially if that be true which L. Vertonius² saith in his 4th book, that the tides of the sea about the city of Cambaya

¹ He seems to have coined this word.

² *The Navigation and Voyages of Lewes Vertomannus . . .* 1503, translated by R. Eden in 1576.

(which bestoweth its name on that whole kingdom in India) increase not as with us at the full of the moon, but quite contrary ; and that the current which setteth betwixt Newfoundland and Spain runneth sometimes east and sometimes west ; and that upon the coast of Brazil, and in the South Sea, as Sir Richard Hawkins noteth in his Observations sect. 2d fo. 5th, the tides and currents are mutable according to the winds. In these respects, I say, I see not why there may not be a consent with Cæsalpinus and Seleucus touching this particular, as well as with any of the rest ; there being certainly (as aforesaid) as few exceptions to be taken against these, as against any of them. And therefore I shall rather conclude with that divine (Elnath Parr in his ' Grounds of Divinity,' fo. 89) who saith, that though it may be that the quantities of the sea-waters thus moving may be ruled by these causes, yet the motion itself, is only by the command and injunction of God, who caused the waters to ebb and flow before the Moon was made. For what other original cause can be given, for that irregular and strange course of tide or current, which Captain Walter Peyton noteth, in his second voyage to the East Indies, that he found at the Island of Mohelia near unto Comora, which runneth fifteen days westerly, fifteen days easterly, and then fifteen days no way at all ; for of this no way at all no reason at all can be given in mine opinion.

ADMIRAL. Since we are fallen in discourse of these particulars touching the natural and original causes of the motions, tideings, and ebbings of the seas, let us digress a little from the main subject of our theme, to deliver somewhat of the several opinions concerning the **saltness of seawater.**

CAPTAIN. Of this, some of the Ancients have delivered their apprehensions that the original cause hereof proceeded from the earth being chased and made hot by the sun, and so this salt humour breathed out into the sea. Others have conjectured that the sea-waters, passing through the parts and pores of the earth, which they say is of a saltish nature, receive this qualification that way; it being primarily in the earth itself. Aristotle refers the saltness of the sea-water to the Sun, the which (saith he) draweth up and out of the sea abundance of exhalations, which afterwards being mixed with vapours fall down again in drops; but the lowest and thicker part thereof, being attracted to the superficies only of the water of the ocean, doth there suffer adustion¹ by the Sun's beams, and consequently becomes salt. Some other naturalists opine that it is essential to the sea-water to be salt; and that as well for the preservation of the fish which live therein, which otherwise (as they believe) would corrupt; as that the very sea-water itself is hereby kept from putrefaction; but so as that this saltness would not be sensibly perceived, by reason of the many mixtures of sweet humours joined with it, but by a separation first made, by the heat of the Sun, of the thinner parts thereof from the thicker: so that the Sun is a disponent, though not a productive cause of this saltness in the sea.

ADMIRAL. But is that true, think you, which some opine, that the sea-water being thus salt, never freezeth?

CAPTAIN. Truly, my Lord, for my part I hold it for a truth. For howsoever some pieces and parts of the main ocean have been distinguished by the denomination of *mare congelatum*,

¹ Burning.

and glacial, yet this is only given in regard of the abundance of ice at some seasons floating in it ; the which ice for all that is not produced out of the substance of the salt water of that sea, but is carried into it by some main rivers of fresh water that fall into it, out of the frozen Continent of those parts ; and this is plainly demonstrated ; first, in that these huge pieces and hills of ice, thus found floating, being melted with the heat of the sun or any other way, are found very fresh ; secondly, in respect that some parts of the sea situated and lying more northerly than any of these where this huge ice is found, never suffer under this accident ; thirdly, in regard that the heat of the spirit hid in the salt humour of the sea-water, being far more fervent and operative than those of the fresh, must in all likelihood preserve it from freezing. And upon these very reasons, I am confident that the sea-water itself is never frozen ; and withal am bold to affirm, that if there be no land in the way to hinder, a ship and men may sail from the North Pole to the South (taking fit season for the voyage) without any stop or danger of ice, or any other certain impediment.

ADMIRAL. This particular is worthy to be taken into serious consideration ; and may conduce to a short discovery of those unknown parts. But let us now return to our sea-words ; among which (if I be not deceived) I find this word Tide not only variously applied, but somewhat confusedly.

CAPTAIN. The word Tide in our sea language is indeed common and in use as well to the ebbing as the flowing of the water ; so that the phrase is **Tide of ebb**, as well as **Tide of flood**.

And besides we have very many words of art,

concerning tides ; as a **Windward Tide**, that is a tide running against the wind ; a **Leeward Tide**, which is when the wind and tide go together ; a **Tide Gate**, and this is when the tide runs very strong. To **tide it over**, or up, into any place, which is to go with a tide of ebb or flood, and to stop the contrary tide at an anchor, until the return of the former. And this is usual when the wind blows contrary, and bloweth but little ; for otherwise they cannot stop at an anchor. And if the ship be held still under sail, there will be more lost in one leeward tide, than gained in two windward. To flow **Tide and half tide**, is when the tide doth run three hours in the offing (that is abroad and out at sea) longer than by the shore ; where, by longer is not meant more hours ; but the meaning is that if it be high water at the shore at twelve of the clock, it shall not be high water in the offing till it be three of the clock ; which is the running and time of a half tide ; and according as it flows or ebbs more, the saying is that it runs half tide, and half quarter, that is to say five points ; and this is the acception of this phrase when they say it flows tide and half tide in any place. For otherwise the speech is most improper, as seeming to express that it did flow a tide and half together there, and ebb but half a tide.

Now when seamen are to conduct a ship into a barred harbour, the saying is that they will bring their tide with them ; that is, they will come on with the flood, and so pass over the bar, or bank, or shelf, without peril. And this bar is a rock ; this shelf a bank of sand, not to be sailed over, for want of depth of water, but with the flood.

ADMIRAL. You have sundry times mentioned

the word **Point** or points, as you did even now ; but let me hear in how many several acceptations the word is used by seamen ; for if I mistake not, this also is as much varied in your phrases, as the word Tide.

CAPTAIN. It is ; for true the sharpness of any headland is called the Point of the land. And when it is said that there are two points one in another, the meaning is that they are so direct, in a right line, the one against the other, that the one cannot be seen for the other. The compass also, whereby the ship's course is steered, is divided (as was formerly noted) into thirty-two points, representing the so many winds¹ ; and the sailing by it, is to sail by a point.

The word **Pointing** likewise is used when the strands at the end of the cable are untwisted about two foot from the ends thereof, therewith to make sennit of the rope yarn ; and to lay them again one over the other, braiding it lesser and lesser towards the end, and at the very end making them all fast together, with a piece of marline or the like. This work, I say, is termed the pointing of the cable ; and the use thereof is sometimes to preserve the cable from ravelling out ; but especially keep it that none of the ends be cut off and stolen away.

ADMIRAL. What is that you here call the **Marline** ?

CAPTAIN. It is a small line made of untwisted hemp, that so it may be more gentle and pliant than other lines ; and (as aforesaid) the use is to seize the ends of ropes from falling or ravelling out. Also with this marline, the sides of the strap of the arse of the block (that is, at the lower end thereof) is used to be seized. With this likewise

¹ The card of the mariner's compass is the descendant of the much more ancient rose of the winds.

if a sail be ripped out of the boltrope, so that it cannot be sewed in again, it is repaired by putting pieces thereof through the eyelet holes ; and it is named marling of the sails.

ADMIRAL. You have often named the word sheets, but not described them.

CAPTAIN. The **Sheets** are ropes bent to the clew of the sails ; but in topsails they serve to hale home (that is, to pull close) the clew of the sail to the yardarms. And it is to be noted that when they hale at the sheets of the mainsail, it is to cause the ship to keep near by the wind. When they hale at the sheets of the foresail, it is to make her fall off from the wind. When a ship will not fall off from the wind, they flat the foresail (that is, they pull the sail flat) by the sheets, as near unto the ship's sides as may be ; when it is said **Ease the sheet**, it is to veer it out, or to let it go out gently ; when they say **Let fly the sheet**, it is to let it run out violently, as far as it will go.

In extraordinary gusts and very foul weather, the use is to bind another rope to the clew of the sail above the sheet block : and this is done to succour and ease the sheets, lest they should break ; and this rope is termed a **Half-sheet** ; and is only used to the main and foresails.

Those planks also which come alongst the run of the ship, and are closed to the stern post, are called sheets, and that part within board abaft, in the run of the ship, is termed the **Stern-sheet**. And the word of command when they would have the sheets of the main or foresail haled aft is, **Hale, tally the sheets**.

ADMIRAL. What doth the word **Duck-up** import in your sea sense ?

CAPTAIN. This term is promiscuously used,

when either the clew of the mainsail, foresail, or spritsail, hinder the light forwards on, so that he that is at the helm cannot make use of the sight of any point or landmark, or star, that he is to steer by. But most commonly this is done to the spritsail when a shot is to be made out of any chase piece ; which otherwise would be blinded, by the clew of that sail. And the word of direction for doing of this is: Duck up the clew lines; that is, pull them up.

ADMIRAL. What understand you by the word **Flare** ?

CAPTAIN. It implies the direct contrary to that of Housing formerly mentioned. And it is when a ship that is housed in near the water, is laid out, over-broad aloft ; for then the saying is, that the work doth flare over. And though this make a ship roomy within board, and in that respect convenient for a man of war, yet it is neither sightly nor wholesome in the sea.

ADMIRAL. What mean you when you say the sheets are **over-flown** ?

CAPTAIN. When any of the sheets are not haled home, nor are close to the block, the word is the sheets are flown. And then they also [say], that the ship sails with **flown sheets**. But when it is said: Let fly the sheets, it implies to let them go out at full liberty, as was noted even now.

ADMIRAL. What mean you when you say, **Free the boat**, or **Free the ship** ?

CAPTAIN. When a ship hath much water in her, the word of command is: Free the ship with the pumps ; and this withal expresseth that she takes not in so much water, or leaks not so fast, but that the water may be thrown out faster by her pumps than she takes it in by any leaks. And on the contrary when it is said the pumps cannot

free the ship, it implies that she labours of an extraordinary and dangerous leak.

As for the freeing of the boat, it is done when the water is cast out of it by baling; that is, by being thrown out by a shovel or scoop.

ADMIRAL. What is that which is termed a **Freshet**?¹

CAPTAIN. When any extraordinary quantity of land waters come down a river on the sudden, or when any great rivers fall down into the sea, so that the salt water of the sea becomes fresh, withal, a good distance into the sea, at the mouth of the river, this is called a great, or a small freshet according as the freshing of the water is found more or less.

ADMIRAL. Which call you the **Fore-foot** of a ship?

CAPTAIN. There is no part of a ship called the fore-foot; but it is only a word in use when two ships, being under sail and in ken one of another, the one of them doth lie in her course with her stem so much a-weather of the other that, holding on their several ways, and neither of them altering their courses, that ship that lieth thus to the weather (that is to say, to the windwards), will run or sail out ahead of the other; and then the sea saying is, that such a ship doth lie [with] the other's fore-foot. And as soon as she hath in this course passed her head, it is no longer said that she is passed her fore-foot, but that she is gone out ahead. So that this word fore-foot implieth nothing else but the sailing of one ship across another ship's way.

ADMIRAL. Which are those named **Fore-locks**?

CAPTAIN. They are little flat pieces of iron,

¹ 'Fresh shot.'

made in the form of wedges. And they are used at the ends of bolts ; where they are put into those holes¹ and serve to keep the bolts from flying out. They are also used to keep fast down the cap-squares of the carriages of the great guns ; of which cap-squares we shall speak more when we come to consider touching all such ordnance, with their appurtenances, as belong to ships of war.

ADMIRAL. What intend you by your sea word **fore-reach** ?

CAPTAIN. When two ships sail together, she which saileth best, and gaineth way of the other, is said to fore-reach upon her.

ADMIRAL. When do you account a ship to be **foul** ?

CAPTAIN. When a ship hath been long un-trimmed, so that any kind of filth, as grass or weeds, or that kind of small shell fish named periwinkles, are grown, and stick unto her sides under the water, she is said to be foul. And this word also is used in another sense ; for when any rope which is used to be haled in and out is hindered either by another rope, or so entangled in itself as that it cannot run to and again, it is said that the rope is foul. And lastly, when two ships fall aboard one another, by any accident, and so lie beating or are ensnared one with another, the saying is, the ships are fallen foul.

ADMIRAL. When is a ship said to **founder**, or to be foundered ?

CAPTAIN. When either by an extraordinary leak, or by any main, or great, sea (that is, billow or wave of the sea) that breaks in upon her, a ship becomes so full with water that she cannot be freed of it by any means, and so is no longer

¹ *I.e.* at the ends.

able to swim under the weight thereof, she is then said to founder in the sea, or that she is foundered.

ADMIRAL. What mean you by **foul water**, in your sea tongue ?

CAPTAIN. Whensoever a ship, being under sail, cometh into so shoal or shallow water as that she raiseth the ground or mud (and this she may do and yet not touch it) with her keel, so that the water becometh black or muddy herewith, by her coming so near unto the ground, she is then said to make foul water.

ADMIRAL. In what sense use you the word **Gage**?

CAPTAIN. Variously enough ; for when the bigness or capacity of any cask is upon a trial, it is called the gaging of the cask. Also when it is to be known how much liquor or water there is left in any hogshead or butt, the word is : Gage the cask. Likewise to know certainly how much water any ship doth draw (that is, how deep in the water she swims), the way is to strike a nail into a pike, and then to put it down close by the rudder until the nail doth catch hold on the bottom of the rudder ; and this is termed the gaging of a ship ; and so many [feet] in water as the ship is thus found to draw, is termed the ship's gage. And lastly, when a ship is to the windwards, or weather of another ship, she is said (in sea language) to have the weather gage of her. And here our words of art are : Of what draught is the ship ; that is, how many foot deep doth she swim in the water ? And a ship is said to be of small draught, when she is floaty or swims lofty, and not deep in the water.

ADMIRAL. How is the word **Gale** taken by seamen ?

CAPTAIN. When the wind blows not too hard,

so that the ship may bear out her topsail a-trip (that is, hoised at the highest) it is called a loom gale; when it blows much wind, it is called a swift and a strong gale, or at the least a fresh gale. And sometimes when two ships are at sea together, and not very far asunder, and but little wind blowing abroad, it may fall out that one of them will find more wind than the other; and then the sea saying is of that ship which hath the most wind, that she doth gale away from the other. But when it blows so much wind and so violently that a ship cannot bear any sail, and that withal there is some rain or hail mixed with the wind, then seamen say, it bloweth a tempest; and this they account a degree higher than a storm.

Now the words of command in these weathers are—when the wind blows fresh or swift, they say: Hale down the fore-topgallant sail, and the main-topgallant sail; in with the spritsail; let go the spritsail-topsail sheets; hale down his clew lines; in with the fore-topgallant sail; in with the main-topgallant sail; in with the mizen-topsail; let go the topgallant sheets; cast off the topgallant bowlines; hale home the topgallant clew-lines. And all these words of command are to be practised when the wind begins to blow fresh; and thus are all the small sails of a ship had in, and the ship fitted to sail in a fresh gale of wind.

ADMIRAL. And what are your words of command when the gale blows stiff?

CAPTAIN. Then we say: Settle your fore topsail; settle the main topsail; hale down the fore topsail; hale down the main topsail.

ADMIRAL. And when the wind blows hard, what are the words of command?

CAPTAIN. Take in the topsails; let go your

lee braces ; cast off your bowlines ; brace the weather braces ; hale home the topsail clew-lines ; furl the sails ; square the topsail yards. And thus have you a ship brought into her courses, to sail in a hard gale of wind.

ADMIRAL. And how, for a storm, or tempest ?

CAPTAIN. Then the commands are : Clear the main halliards ; hale down the mizen ; cast off the topsail sheets, the clew garnets, the bunt-lines, the leech-lines, and lifts ; bring down the yards ; hale to the capstan ; get the sails together and furl them. And in this manner a ship is fitted to lie in a storm ; but when sudden and fierce tempest befalls, our words of command are in brief (for there is no time to be tedious) : Star-board hard ; right the helm ; port hard ; more hands to the helm. And this being done the sails are to be taken in (as before commanded). And as for the striking of the topmasts in this extremity of tempest, I am of his mind (though many are to the contrary) who holdeth that a ship is the wholesomer in the sea (though it be in a storm or tempest) when her topmasts are up, than when they are struck, and that she hath better way through it ; so that when there is sea room enough it is the safest course not to strike them, neither under the sea nor before.

ADMIRAL. These (you say) are the words of command in the management of the sails of a ship, when the wind blows either fresh, stiff, hard, or when it blows either a storm or tempest. But how command you to this purpose, when the wind blows scant ?

CAPTAIN. Then our words are : Veer out some of the weather sheet of the foresail ; let go the weather braces ; top the spritsail ; loose the mainsail ; let go your fore-tack ; cast off the

weather sheet ; let go your weather brace ; veer out some of the lee sheet ; let fall the mainsail ; get to the main-tack ; cast off the main-brace, and main-topsail ; hale aft the main-sheet ; in with the spritsail ; square the spritsail yard ; let go the spritsail sheets ; hale up the spritsail's clew-lines ; hale forward the main-bowline ; hale the main-topsail bowline ; hale taut the fore bowline, and fore-topsail bowline ; hale aft the main-sheet ; hale aboard the mizen ; get in the lee braces ; and keep her as near the wind as she will lie. And if the wind veers forwards, so that perhaps the ship will lie nearer her course the other way, then the words of command are : Make ready to go about, or about the ship ; a-lee the helm ; veer out the fore-sheet ; cast off the lee braces of your foresail and fore-topsail ; brace up the weather braces ; hale about the mainsail ; let rise the main tack ; cast off the larboard braces ; let go the main bowline, and main-topsail bowline ; hale forwards by the larboard main-bowline and main topsail ; brace upon the starboard main-brace and main-topsail ; get to the main-tack ; hale aft the main-sheet ; let rise the fore-tack ; veer out the weather sheet ; get to the fore-tack ; let go the fore-bowline and fore topsail ; hale aft the lee sheet ; taut the main bowline and main-topsail ; set in the lee braces fore and aft ; shift the mizen ; and keep the ship as near the wind as she will lie.

And thus is a ship brought about, and trimmed to lie close by a wind.

ADMIRAL. Since you have here made mention of storms and tempests ; tell me what your hurricanes¹ are, which are found so common in the West Indies.

¹ 'Hurricanes.'

CAPTAIN. I shall, my Lord, and that in regard that this hurricane may be said to be the most enraged prince amongst them, and the lion of tempests.

As for the word it is the Spanish, or rather Morisco, word for a whirlwind ; true it is that these whirlwinds (if one may call them so for in respect of their continuance they seem to be of another nature) in the West Indies and those parts, are exceeding extraordinary, as well in regard of their violence as lasting. And it is very observable that in some places these devastating winds are found very frequent, and so extreme outrageous that, if reports misreport not, some ships that have been taken with them, near some of those coasts, have been rather thrown than driven, even far into the land ; and yet in other parts near thereabouts, or at the least not very far remote, these fierce winds are scarce felt at all, or very rarely. As for example in the Islands of the Bermudas or Somer Islands, these winds are found almost every year ; and once in three years so outrageously violent that they blow down all their houses, and almost all things else that stand in their way ; and lasting withal two or three days together, seldom give over until they have rounded the four quarters of the hemisphere ; when as yet in Virginia, which is the nearest land unto them, I never knew or heard that they were troubled with any of them ; or at the most, not much.

ADMIRAL. And what, do you apprehend, may be the reason hereof ?

CAPTAIN. If you seek after the originals and first causes, divines will tell you that their generation and motion is to be referred to God's immediate power ; and surely in respect of the chief

and primary cause they say well ; but nothing to the secondary, concerning which we are (in mine opinion) to look back to the nature of winds in general ; the which the philosophers do express in this definition, when they say that it is a certain plenitude of hot and dry exhalations, void of pinguid matter ; the which being partly aspired and partly exhaled out of the earth, are thus carried about the earth ; and their motion caused, by the aspiring of the exhalation, and the detrusion of the air ; and so, with a refracted and disjointed force, driven hither and thither ; as not being suffered to fly up nor willing to fall down, in respect of the great levity that is in it. And the place, from whence this motion beginneth is from above. Only the particular winds of some certain parts are thought by some to have their immediate motions out of the caverns of the earth ; though others, otherwise ; of which more shall be said hereafter.

ADMIRAL. And what do you infer from all this, with relation to the particular hurricanes ?

CAPTAIN. First, that in regard that in the southern parts of the earth between the tropics and near unto them, the sun having an extraordinary force, whereby these hot and dry natural exhalations and aspirations are begotten and multiplied, I collect that hence it may well be that these violent and during whirlwinds become more frequent there and forcible, than in other parts, where the sun looks not down so perpendicularly. Secondly, that they are in the same particular parts more often and more violent than in some others, though under the same latitude, in respect that the soil of these parts and pieces where they are most troubled with them hath not lain so long under tillage and manurement as

elsewhere. By reason whereof these evaporations find not so easy vent ; but that by being thus kept up as close prisoners, they issue and rush out with the far greater violence and impetuosity, when they once obtain their liberty. And lastly in regard of the Islands of the Bermudas (the part particularly instanced) I conceive that both their frequency and force may there be occasioned by the extraordinary hollowness and cavernousness of those rocky pieces (which I know to be so upon mine own experience) wherein a larger quantity of these vaporous breathings may well be received and collected, and hereby at their eruption prove so much the more impetuous and lasting.

ADMIRAL. I have heard of a wind called a tornado, which is also said to be found and felt in the East and West Indies, and it is said to be very violent and furious. How doth this differ from the hurricane ?

CAPTAIN. In nothing more than in the lasting of it ; and in respect that it commonly passeth over before the sea can be overgrown, it is not much feared or at least not so much as the hurricane ; which when it begins seldom ends under four and twenty hours lasting at the least. It is farther also to be noted that this wind termed a tornado, is not found but where the wind blows Trade in some kind or other ; and when it blows, it blows contrary to that wind, and from thence hath the name ; of which Trade Winds we shall speak more by and by, and of their nature and variety.

ADMIRAL. Before we get clear from these storms and tempests, let me be informed what those lights be, which seamen report do appear sometimes upon the shrouds and other parts of

ships in foul and boisterous weather ; and what seriously they do portend.

CAPTAIN. Scholars say (and for my part I do believe them) that the matter and substance of these lights (anciently called Castor and Pollux, when they are two or more ; and when but one, Helena ; and at the present termed by the Spaniards and Portugal, St. Elmo, and ridiculously and superstitiously adored) are of the same nature with that exhalation called *ignis fatuus* ; being a fat and oily exhalation and hot and dry withal ; yet withal somewhat heavy in regard of the glutinous matter whereof it is composed. The which when it happeneth to be fired by some violent motion, and withal suffereth an anti-peristasis¹ in some part over and upon the sea, as upon the tackling and masts of ships, there appeareth these kind of lights, the which seen in one body only, it is noted to be a fore-runner of a tempest, and very foul weather. Because hereby is evidenced that as the matter which thus burneth is so compact in one that it cannot be dissolved into two ; so the matter of the tempest which is exhaled by the like cause, will be kept also from being dissolved ; and is so closed together that in a short time it must needs break out with violence and so occasion a storm. On the contrary, when this exhalation appears in several lights it sheweth fair weather, and the ending of a storm ; because there is not the like strife in the nature of the exhalation as when it is only one ; nor is the matter so compact. And it is observed that as these kinds of exhalation are divided, so the matter of the storm is also, and consequently the sooner and easier dissolved.

ADMIRAL. Let us now return to our sea-

¹ Resistance ; reaction.

language again. And tell me, what is that piece of a rope which you call the **Garnet** ?

CAPTAIN. It is a tackle wherewithal is hoisted in all the casks and goods that be not over-weighty ; and this also, as the former tackle forementioned, hath a pendant coming from the head of the main-mast, with a block strongly seized in the main step,¹ just over against the hatchway where the goods are taken into the hold ; and in this block is reeved the runner, which hath a hook at the one end, in which are hitched the slings, and at the other end there is a double block in which is reeved the fall of the runner ; and so by that is hoisted and haled in the goods. And when there is no occasion to use this garnet it is fastened alongst by the stay, at the bottom of the ship.¹

ADMIRAL. What mean you by a **Girding Girt** ?

CAPTAIN. When the cable is so taut (that is, strained) that upon the turning of the tide the ship cannot turn over it, but is stayed by the stern-post, she will then lie across the tide ; and being in this posture the sea word is that the ship is girt, or hath a girding girt.²

ADMIRAL. What kind of sail is that which is termed in your sea tongue a **Goose wing** ?

CAPTAIN. When a ship is sailing before a wind, or with a quarter wind, in a fair and fresh gale, there is sometimes practised (as occasion requireth) a device to unparrel the mizen yard and launch out that sail and yard over the quarter on the lee side ; and fitting guys³ at the farthest end, therewith to keep the yard steady with a

¹ These should both read ' stay,' as in Mainwaring.

² I suspect that this second phrase is merely Butler's misreading of Mainwaring's MS. ; the only reference in O.E.D. is obviously no more than a paraphrase of this text.

³ ' Gius ' ; elsewhere ' giues,' ' guies ' or ' gyues.'

boom ; and this booms out the sheet of the mizen sail ; and thus they give the ship more way than otherwise the mizen sail would do. And this sail thus fitted is termed a Goose wing ; and sometimes a studding sail.

ADMIRAL. What are these guys and this boom ?

CAPTAIN. A **Boom** is a long pole employed to spread out the clew of the goosewing, or studding sail, and sometimes these booms are also used, to the same purpose, with the clew of the mainsail and of the foresail, the better to catch the wind. And this is called booming. A ship is also said to come booming when she comes with all the sails she hath abroad.

And this booming of sails is never used but either in fore winds or quarter winds.

Those signs and marks also, which are fixed to direct the way into the channels of harbours, are termed booms.

And for a **Guy** or Guys, it is any rope employed to keep off anything from falling or bearing against the ship's side, when as it is to be hoised in. And when anything is to be haled in over the gunwale, it is by this guy rope eased in gently and securely ; and this rope is generally made fast to the stanchions of the waist-trees.

There is likewise a certain rope, made fast to the foremast at the one end thereof, and it is reeved through a single block which is seized to the pendant of the winding tackle ; and then again reeved through another block which is seized to the foremast, somewhat lower than the first part thereof ; and this serveth to hale forwards the pendant of the winding tackle and is also termed a guy.

ADMIRAL. What is it you term **haling** ? ¹

¹ This covers both *hauling* and *hailing*.

CAPTAIN. That which is called pulling, on the shore, is haling at sea, when you speak at large. But when it is said: Hail the Ship, this is taken in another sense, and implieth as much as to call unto her, to know whence she comes, what she is, and whither bound. Sometimes ships are also haled, by way of salute; and this is done as well with trumpets and whistles as with the voice.

ADMIRAL. How do you use the word **Hand** or **Handing**?

CAPTAIN. When anything is so delivered as to be passed from one man to another, or to be carried to any one, the sea saying is: Hand it this way or that way; and when there is any business to be done that requireth many men, the word is, instead of call some more men, to say call for more hands.

ADMIRAL. You formerly told what the hawses are in a ship: but what is that you term a **Hawser**?

CAPTAIN. It is a three-strand rope, of that thickness as it may be called and held for a little cable, and it serveth for many uses; as to warp a ship over a bar, and for the like occasions. And with these kinds of ropes also, the main and fore shrouds are made fast.

ADMIRAL. What mean you in your sea tongue by the word **Heaving**?

CAPTAIN. The word is variously taken; as the throwing or casting of anything out of the ship into the sea is called heaving it overboard. Also the turning about of the capstan is named heaving at the capstan. Likewise when a ship doth rise and fall by the force of the billow and waves of the sea, when she is at an anchor, she is said to heave and set.

ADMIRAL. What call you a **Head sea**?

CAPTAIN. It is when a great billow or wave comes upon a ship, right before, as she sails in her course out at sea.

ADMIRAL. Which are the sails called the **Head sails**?

CAPTAIN. They are those sails which belong to the foremast, to the bolt-sprit, and to their topmasts; and properly they are called the head sails because they govern the head of the ship, and make it to fall off, and keep it out of the wind. And these sails, in quarter winds, are the chief drawing sails.

ADMIRAL. What sea beast is that which you term a **Horse**?

CAPTAIN. A horse at sea is a rope, made fast to one of the foremast shrouds, with a dead-man's-eye at the end thereof, through which is reeved the pendant of the spritsail sheets; and it is for no other use but to keep the spritsail sheets clear from the fluke of the anchor.

Also when the lead is heaved out of the shrouds, there is a rope made fast to the shrouds, to preserve him that heaveth it from falling into the sea; and this rope is likewise termed a horse.

Also the **Wap** (which is that whereby the shrouds are set taut) is styled a horse.

Those little short ropes likewise, which are seized to the midst of the topmast and top-gallant stay, and wherein are reeved the topsails and top-gallant bowlines, are called horses.

ADMIRAL. What is that which is termed the **Hullock** of a sail?

CAPTAIN. It is a small part of a sail, cut and let loose in a main storm, when they dare not open any more of that sail. And it is used in the mizen sail, only to keep the ship's head to the sea.

Also when a ship will not weather coil, the way is to loose a small part or hullock of her foresail, and then changing the helm to the weather side, the ship is made to fall off and so to have her head laid where her stern was before.

ADMIRAL. Explain the word **Weather coil**,¹ and withal let me know the words of your art which in propriety belong to the mizen-mast, yard, and sail.

CAPTAIN. The weather coiling of a ship is when, being a-hull, her head is brought the contrary way to that she lay before ; and that without letting loose of any sail, but only by bearing up the helm.

As for the sea words, appropriated to the **Mizen** in peculiar, it is to be understood that when at sea mention is made of the mizen, it is meant of the sail, not of the mast. As, to set the mizen is to order the mizen sail ; to change the mizen is to bring the yard to the other side of the mast ; to peak the mizen is to put the yard right up and down by the mast ; to spill the mizen is to let go the sheet, and withal to peak it up. Now the main use of this sail is to keep a ship close by the wind ; for if a ship gripes too much, they use not any mizen. Sometimes it may be the mizen is used when the ship is at an anchor, to keep her astern, lest she should come foul on her anchor, upon the turning of the tide. And sometimes a ship is brought to try with the mizen.

ADMIRAL. You spake formerly of the jeer capstan ; but as for the **Jeer rope**, you only named it ; and therefore according to your promise then, explain it now.

CAPTAIN. It is a piece of a hawser, made fast

¹ ' Quoile.'

to the main yard, and fore yard, close at the ties, and it is only used in great ships ; from whence it is reeved through a block, which is seized close to the top ; and so comes down, and is again reeved through a block at the bottom of the mast, close by the deck. And some great ships have one on the one side of the ties, and another on the other. And their use is, to help to hoise up the yards ; and especially to succour the ties, and to keep the yard from falling down if the tie should break.

ADMIRAL. Have you not a line called the **Knave-line** ?

CAPTAIN. We have so ; and with it (for name-sake) the common mariner makes good sport with ordinary freshwater men. And it is a rope which hath the one end thereof fastened to the cross-trees, under the main and foretop ; and so cometh down by the ties to the ram-head ; into which there is seized a small piece of a billet about two foot long having a hole in the end thereof, into which there is reeved this line, and so brought to the ship's sides, and there haled up taut to the rails.

And the use and employment of this knave-line is to keep the ties and halliards from turning about, the one to the other ; the which when they are new, they would assuredly do were it not for this line. But after that the halliards and ties are stretched awhile this line is quite taken away, and no more in use but upon the like occasion.

ADMIRAL. Express the significations of these words: Landfall, Land-locked, Land-to, and Land-turn.

CAPTAIN. A **Landfall** is when a ship, coming out of the sea, fall with the land, as when land is within short time expected to be seen ; then the

saying is (if it so fall out) that they have made a good landfall, and especially if they fall right with that part of the coast which they desired. And so the contrary.

Land-locked is when a ship being in a road, and especially a harbour, the land lieth so round about her, she being at an anchor, that no one point lieth fully upon the sea. For then the word is, that the ship rides land-locked.

Land-to is when a ship is just so far out at sea that from her the land may be kenned : so that when a direction by way of a rendezvous, or place of meeting of any ships or fleet, is given in these terms ; to lie out at sea, upon such a height, over against such a cape, land-to ; the meaning is in plain English that they are to lie so far out at sea, upon such a coast, as that the land may well be discovered ; and neither nearer nor farther off, as near as possibly may be.

As for the word **Land-turn**, it is the same with reference to the land as the breeze is to the sea ; only the difference is that the land-turn is found by night, the breeze by day.

ADMIRAL. For the full understanding of this passage, you must inform fully what a **Breeze** is.

CAPTAIN. It is a wind, of course, which in hot countries and fair weather is generally found to blow and come off the shore ; and it commonly begins to blow pretty fresh, and temperately, about nine of the clock in the mornings, and ceaseth about four in the afternoons ; and this is termed a breeze. On the contrary, about four of the clock in the afternoons, or soon after, there cometh another the like moderate wind out of the sea, which bloweth upon the shore ; and this is called a land-turn.

ADMIRAL. Since we are thus occasionally fallen

to speak of the **kinds of winds**, as we did before of the violences of them, let us digress a little and enlarge ourselves touching this particular.

CAPTAIN. Of the several kinds of winds, besides these two, the breeze and the land-turn, there are observed these following: First, those called of old the Etesian winds, which every year, about the rising of the Dog Star, blow out of the north-east with a constant course, sometimes, forty days together. But this must be understood to be in those parts which are next to the northwards of the Tropic of Cancer. Secondly, those named the Chelidonian winds, by reason that they arise at the first coming in of the swallows into those parts where they blow; and these blow sometimes west, and sometimes north-west. Thirdly, may be reckoned those winds blowing at one certain time of the year upon the coast of Portugal, and were first observed by Columbus, and gave him great encouragement to his search after America. Fourthly, are those winds, which the Portugals in the East Indies have observed to occasion extraordinary motions upon those seas every year, whilst the sun passeth through the southern degrees; and when it arrives at the point of Sagittarius, to cause an extraordinary tempest. Fifthly, is that burning wind, by some taken to be Eurus or Vulturnus which blows at south-east and by east, and follows the sun when he riseth in the equinoctial, and is called Sub-solanus and Serenator; the nature whereof is hot and dry; and is distinguished from Cæcias the north-east and by east wind by its not blowing so loud: the which when the air is enflamed by the sun, is so far from correcting its extremity, that it rather increaseth it, and becometh as it were a waggon to carry the beams of the sun

fore-right ; and is thought to be that which is mentioned in Genesis 41, that blasted and burned up those thin ears of corn, seen in vision by king Pharaoh ; and which Columella writeth of, when he saith that at some time of the year, and especially in the dog-days, in certain climates men are so parched with the east wind that unless they shelter them it burneth them like flames of fire. Sixthly, are those kind of winds about the coasts of Cambaya and Malabar, the which in summer time blow from the land, beginning at midnight and continuing till noon ; never blowing above ten leagues out to sea ; and presently after one of the clock in the afternoon until the midnight following, the quite contrary winds blow ; and thus keep their vicissitudes and set times, and hereby make that land very temperate, which otherwise might prove insufferable by reason of heat. Seventhly, are those named Trade winds ; the which within the tropics and near about them, in the most parts of the West Indies, blow almost always all one way ; and of which, in a voyage to the West Indies, in the sixty-one year of my life, I made these following observations: First, that we first met with them about the height of the Canary Islands, in 28 degrees of northerly latitude. Secondly, that they blew sometimes at due east ; sometimes at north-east ; and sometimes at south-east or thereabouts. Thirdly, that they blew fresher and fresher from the sun rising until noon ; and then by degrees dulled until midnight, and then freshed again as before, and so continued every day. Fourthly, that these winds were in their primest vigour, and veered from the point of due east, accordingly as we approached to any main continent of land ; so that when the main of Africa

was nearest unto us, and anything to the northwards, we found these winds to blow fresh a point, two or three to the northwards of the east. And when we came nearest to the main of America, which containeth Brazil, Caribana, Peru, and the rest of them, then on the contrary they were so many points to the southwards of the east as the land bore to the southwards; and blew fresher and fresher as we stood nearer with the land.

ADMIRAL. And what do you conceive may be the natural cause and reason of the blowing of these Trade winds in this manner, in the parts?

CAPTAIN. It is the general received opinion that this motion should be originated and regulated by the motion of the heavens and principally of that *primum mobile*; as that, by its impetuous motion from east to west, it should not only violently carry with it all the inferior globes, but also those elementary ones, of the fire, air, sea and water also, and so by consequent these winds. But for my part, I find not much ground to settle this opinion upon, for why should not the motion of the *primum mobile* (thought by many to be an unnatural one, as it is propounded) be as prevalent and forcibly operative upon other parts of the terrestrial Globe, as upon this part alone, betwixt the tropics; and so produce the like effect in all places, which experience tells us it doth not. And therefore I shall as soon be induced to believe that these Trade winds may be occasioned by the diurnal motion of the sun; the which motion within the Tropics, and near unto them, may well be thought to be more violent and of force to carry the air with it, than in other parts of the earth whence it is more remote, and looks not down upon it so perpendicularly. Or (at the least if I may with patience be suffered to be inclinable

to the opinion of Copernicus, and especially Dr. Gifford and some other modern men) why may not these Trade winds blowing thus from the east to the west, within and about the tropics, be as well caused by the diurnal motion of the earth ; which (if there be any, as these men not without reason conceive) must needs be more violently powerful in these parts than in any of the rest, in respect that it carrieth the circumference here at the largest, and by reason hereof may transpose the air and so the winds, more constantly the same way. But because the same objection may lie against this also that was made before against the *primum mobile*; as that then these winds should thus blow Trade in all parts betwixt the tropics, as well as in the West Indies ; I shall determine nothing, but rather leave it as inscrutable, and only say that the one opinion may be as well believed as the other.

As for the burning east wind formerly mentioned, I cannot apprehend any natural cause hereof ; unless, perhaps, that passing over some large tracts of sandy deserts lying near and contiguous unto those parts to the eastwards upon which this wind bloweth, the air being hereby doubly heated by the sun's reflection upon these sands, may be carried alongst with this wind, and hereby produce this fervency of heat. And thus may it be occasioned that the parts of Barbary about the city of Morocco, are (accidentally) found to be one of the hottest parts of the world, by having Egypt, but especially the many barren sands betwixt it and Egypt, lying to the eastwards of them. And on the contrary, thus may the north-west winds, that blow upon the northern parts of America, as Newfoundland, and New England, and Virginia itself, by passing over some

main mountainous parts in a great tract of land lying that way, and extending itself far into the north-west, occasion those extraordinary colds, in respect of the climates, which are there found.

ADMIRAL. Are there not certain other winds besides all these, called **Monsoons** ?

CAPTAIN. There are ; and these also are found in the East Indies, about the coasts of Goa, the which constantly blow six months one way, and six months the contrary way ; and are as constantly attended and made use of, by the merchants trading into those parts, in their commerces to and again.

ADMIRAL. What are those winds or airs called **Sereins** ?

CAPTAIN. The scholars say that a serein is nothing else but the cold air of an evening, after a very hot day. By the heat of which day, the pores of men's bodies being opened, lathers and defluxions of that kind are perilously gotten, by the sudden change of air and cold of the evening. And these sereins are most common and dangerous in the hottest countries, by reason that the alterations and changes of air are more sensible there than in colder climates ; and especially if the place be subject to accidental alterations of this nature, as in Virginia, where after an exceeding hot day, if the wind in the evening or in the night come about into the north-west or thereabouts, there is found so sudden and great an alteration of air from heat to cold, as occasioneth many distempers and much sickness amongst our Colony people there. And the rather in regard that many of them go from hence very slenderly provided with provisions and necessaries ; and withal are so improvident, that finding some troublesome heats in the day-time, they willingly

lie abroad upon the ground in the evenings, and thus catch their deaths by these sereins.

ADMIRAL. Let me reduce you to our sea terms, and tell me what is it to **lay the land** ?

CAPTAIN. When seamen are out of sight of land, the phrase is : The land is laid ; but when any point of land hinders the sight of that which the ship comes from, then the saying is, that the land is shut in, or is shut into the other point.

ADMIRAL. What rope is that called the **Lee-fang** ?

CAPTAIN. It is that rope which is reeved into the cringles of the courses, when the bottom of any sail is to be haled in, that so the bonnet may be laced on. And these lee-fangs serve also to take in the sails.

ADMIRAL. You have formerly spoken of the leech of a sail ; but what are those you term the **Leech-lines** ?

CAPTAIN. They are small lines fastened to the leech of the topsail (for they belong not to any other sails). And they are reeved into the block at the yard, close to the topsail ties. And the use of them is to hold in the leech of the sail when these sails are to be taken in.

ADMIRAL. What lines are those termed the **Martnets** ?

CAPTAIN. These are likewise small lines fastened to the leech of the other sails, and resemble those crow-feet formerly mentioned, and they are reeved through a block on the topmast heads ; and so come by the mast to the deck. The martnets of the topsails likewise, are in the same manner fastened to the heads of the topgallant mast, but their falls come no farther down than to the top. And the saying at their haling is : Top the martnets. And their use is to bring

that part of the leech of the sail which is next to the yardarm, close up to the yard when the sail is to be furled.

ADMIRAL. What call you the **Lifts** ?

CAPTAIN. They are small ropes which belong to the yardarms of all the yards, and only serve to top the yardarms ; that is, to make the ends of the yards to hang the higher up or lower, or level and even, as cause requireth.

As for the topsail lifts, they also serve instead of sheets to the top-gallant yards, as well as for lifts to the topsail yards. And the word of command in haling of these is : Top the lifts, or top the starboard or larboard lift.

ADMIRAL. Which are those you call the **Legs of the martnets** ?

CAPTAIN. These are also small ropes, put through the bolt-ropes, of the main and fore sails, in the leech of the sail ; and are about one foot in length, and at either end are spliced into themselves. And they have a small eye, whereinto the martnets are made fast with two hitches ; and the end is seized into the standing part of the martnets.

ADMIRAL. What line is that which you call the **Log-line** and how is it used ?

CAPTAIN. This log-line is a small line having a little piece of a board at the end thereof, with a little piece of lead fastened so unto it as to make it swim edge-long in the water ; and this line is sometimes, and as well, called a minute-line as a log-line.

Now the use of this line and log thus fitted is, that when the ship is at sea and under sail this line, and the board which is termed the log, are heaved overboard out of the poop of the ship ; the line being laid loose at length that it may

freely run out, and having withal at every fathom of its length certain distinct marks fastened unto it ; so that by observing how many fathoms of line do run out in a minute of an hour (which minute is measured with a minute-glass) it is conceited that a good judgement may be given how many leagues the ship doth sail in every watch ; so long as she continueth to make so good a way. As for example, every knot or mark set or fastened upon the log-line they make in their account to answer in measure to one league and one English mile, so that if the way of the ship carry out the log three marks or knots in the time that the minute glass runs out once, they then reckon that the ship makes on in her way twelve English miles in one watch ; and so of the rest.

ADMIRAL. What mean you by this your sea Watch ?

CAPTAIN. At sea, all the ship's company are divided into two parts ; the one being called the starboard watch, the other the larboard. And each of these companies are in their turns to keep the watch, as also to trim the sails, to pump and perform all other the services belonging to the ship, for full four hours' space. And then the other watch is to relieve them for four hours more ; so that the space of a watch (when the ship is at sea) is the time of these four hours. But when the ship is in harbour or in a road, they observe quarter watch, and that is, when one quarter only of the ship's company and no more do watch together. And hereby they allow themselves so much the more sleep and rest, as having less to look after than when they are at sea.

Now of these watches, the Master is the chief of the starboard side, and his right-hand Mate (that is, that Mate who hath his cabin

on the right side of the Master's Round-house) is the chief of the larboard watch.

ADMIRAL. What is the **Loof-hook** ?

CAPTAIN. It is a tackle with two hooks ; and the one end thereof [is to hitch in the cringle of the main and foresail ; the other] is to hitch into a strap which is spliced into the chess-tree and so [? haul] down the sail. And the use of it is to succour the tackles¹ in a large sail, that so all the force and strength and stress may not bear upon the tackles¹ ; and it is also employed when the tackle¹ is to be very extraordinarily seized.

ADMIRAL. What rope is that which in your sea denomination is termed a **Parbuckle**² ?

CAPTAIN. It is a rope which is made use of in the nature of a pair of slings ; and it is seized together at both ends, and so put double about any ponderous thing, which by it is to be hoised into the ship. And the hook of the runner is hitched in it to hoise it by.

ADMIRAL. What is the **Runner** ?

CAPTAIN. It is a rope which belongeth to the garnet and the two bolt³ tackles ; to that before, which cometh in the aftermost shrouds of the foremast, and to that abaft which comes in the foremast⁴ shrouds by the mainmast. And it is reeved in a single block which is seized to the end of a pendant, and hath at one end a hook to hitch into anything, and at the other end a double block, wherein is reeved the fall of the tackle or garnet ; the which by this means doth purchase more than the tackle or garnet could do without it.

And the word of sea direction here is : Over-

¹ These should read ' tacks ' or ' tack.'

² ' Parbunckle.'

³ This should read ' boat ' as in Mainwaring.

⁴ This should read ' foremost.' Mainwaring has the same mistake.

hale the runner ; that is, pull at that end of it which hath the hook in it, and hitch it either into the sling or somewhere else where it may be made fast.

ADMIRAL. What mean you by a **Passarado** ?

CAPTAIN. That is a rope wherewith, when the ship goeth large, there is haled down the sheet blocks of the main and foresails, when they are haled aft ; the clew of the mainsail unto the cubbridge head of the mainmast, and the clew of the foresail to the cat head.

ADMIRAL. What ropes be those you call **Plats** ?

CAPTAIN. They are flat ropes made of yarn, laid one over another. And they serve to save the cable from galling in the hawse. They are also employed in the fluke of the anchors to preserve the pendant of the foresheet from galling against the anchor.

ADMIRAL. Which term you the **Ratlines** ? ¹

CAPTAIN. They are those lines with which are made those steps ladder-wise, whereby the shrouds and puttocks are ascended ; as likewise the topmast shrouds in great ships. And these are named the ratlines of the shrouds.

ADMIRAL. What call you **Smiting lines** ?

CAPTAIN. It is a small line or rope, made fast to the mizen yardarm below, by the deck ; and when the mizen sail is furled up, this line is made up with it to the upper end of the yard ; the sail itself being made up with rope yarns ; and so it comes down to the poop. And the use thereof is to loose the mizen sail without striking down the yard ; for by hard pulling upon this rope, all the rope yarns are broken and cut

¹ He spells this word ' raire lines ' or ' rayre lines.' I know no other example of this spelling.

asunder ; and so the sail falls down of itself. And hence this line taketh its name. And the sea word of command is : Smite the mizen ; that is, pull hard by the smiting line that the mizen sail may fall down.

ADMIRAL. You have often made mention of the **standing part** of running ropes ; as likewise of standing ropes, but you distinguish them nowhere.

CAPTAIN. Those standing parts of running ropes, are those parts of them which are fastened to any part of the ship, and so are not to be haled by. As for the standing part of the sheet, it is that part which is made fast by a clinch into a ring at the ship's quarter ; and so of the rest. So that when it is said : Hale the sheet, it is only meant of the running part. But if it be said : Overhale the sheet, it is then upon the standing part only. And the like is done with all other tackles and with all other running ropes.

As for the standing ropes, they are counted to be those which are not used to be removed out of their fixed places, nor to run in any block, but are only set taut or slack as occasion requireth. And such are the sheetstays¹, the backstays, and the like.

ADMIRAL. What properly are those you term **Top ropes** ?

CAPTAIN. These are those ropes wherewith the topmasts are settled, or struck lower. And they belong to the main and fore topmasts, and are reeved through a great block, which is seized (that is, made fast) under the cap, on the one side thereof, and then reeved through the heel of the topmast into a brass shiver, which is placed athwart the ship ; and so brought up and fastened at either ² side of the cap [with a clinch unto a

¹ A clumsy mis-copying of Mainwaring's ' shrouds, stays,'.

² This should read ' the other ' as in Mainwaring.

ring, which is made fast into the cap] ; and the other part cometh down by the ties and so is reeved into the knight, and so to the capstan, when they heave upon it.

ADMIRAL. When you formerly described what the jeer capstan was, you made mention of a certain hawser named the **Viol**, and then referred it to be more spoken of when you came to speak of ropes ; and therefore I expect now.

CAPTAIN. When the main capstan is not able to purchase in the cable, by reason that the anchor is let fall into such stiff and tough ground as makes it very difficult to be weighed, then (by way of assistance) the use is to take a hawser and open a strand thereof, and so to put in nippers as they call them, (which nippers are small ropes, with a small truck ¹ at one end) and with them they bind fast this hawser unto the cable, and so bring it to the jeer capstan, and heave upon it. And this work is termed the viol. And it will purchase far more than the main capstan can ; and this viol is fastened together at both ends with an eye and a wale knot, or else with two eyes seized together.

ADMIRAL. What is that you term a sea **Yoke** ?

CAPTAIN. When the sea is so rough, or as seamen say, grown, that the helm cannot be governed or managed with men's hands, they then seize two blocks to the helm, on each side one, at the very end thereof ; and reeving two small ropes (called falls) through them (the which falls are fastened to the sides of the ship), they appoint some men at each tackle, who thus order and manage the helm accordingly. There is also another way practised to this purpose, and that is by taking a double turn about the end of the helm

¹ ' Tack ' in **D** and **E**.

with a small rope, the which being belayed fast to the ship's sides, the steersman doth herewithal with far more ease guide and use the helm. And both these ways are termed a yoke to steer by.

ADMIRAL. What ropes are those which you call **Trusses** ?

CAPTAIN. They are ropes made fast to the parrels of the yards, and are employed in two several services. The one is, to bind fast the yards to the mast when the ship rolls, being either a-hull or at an anchor. The other serves to hale down the yards in a storm or gust. And these trusses do belong to the main yard and fore yard, and also to the mizen, and are brought-to upon occasion.¹

And thus, my Lord, I have made up and explained all those parts, parcels, and pieces (or all, at the least, of any note and use) that belong and are pertinent, not only to the hull of a ship, but to her masts, yards, sails, ropes and general rigging.

ADMIRAL. It remaineth nevertheless that you speak of her anchors and parts of them ; as also of her boats and their appurtenances ; and likewise of her great guns with their furniture ; and then conclude this our fourth day's discourse with such words of your art as hitherto have been omitted, by reason we have had no occasion to introduce them.

CAPTAIN. What an **Anchor** is and wherefore it is, is as generally known as the ship itself. As for the parts of an anchor, these are as followeth.

¹ Mainwaring says the mizen ' hath ever a truss,' and only the fore and main were occasional.

(1) The **Ring** whereto the cable is fastened. (2) The **Beam** or the **Shank**, which is the longest part of an anchor. (3) The **Arm**, and this is the part whereto the fluke¹ is set. (4) The **Fluke**, which is the broadest part of the anchor, being two in number, which fasten themselves, and so take hold in the ground; and these also are termed the **Palms** of the anchor. (5) The **Stock**, being that piece of wood which is fastened unto the beam, close by the ring. And this stock is that which so guideth the flukes of the anchor that one of them infallibly pitcheth itself into the ground, in the bottom of the sea, harbour, or channel, whensoever the ship cometh to an anchor. (6) The **Eye**, which is the hole wherein the ring of the anchor is put. (7) The **Nut**, which is the knob of the anchor at the head. And these are the parts, belonging to every anchor in general.

As for the kinds of them they are: (1) The **Kedger**. (2) The **Grapnel**. (3) The **Stream anchor**. (4) The first, second, and third anchor, so called according to their degrees of greatness; two of which are carried at the bow of the ship, and the third, which is the mainest one of all the rest, is termed the **sheet anchor**. And this is their last refuge, when in extremity of weather the ship is forced to come to an anchor, even sometimes in the very sea.

ADMIRAL. For the better understanding of these your several kinds of anchors, you must enlarge yourself in their descriptions; as first of the kedger.

CAPTAIN. When a ship is brought up or down a narrow river, and the wind contrary to the tide and she to go with the tide, then the

¹ **E** reads 'shank.'

course is to set the foresail, the fore topsail, and the mizen ; and so to let the ship drive with the tide, that by these sails she may be flatted about. And if she chance for all this (by the setting of the tide) to fall or drive over-near any point or shore, the practice then is to employ a small anchor in the head of the long boat, having a hawser made fast unto it, which comes from the ship. And this anchor is let fall, and so the driving of the ship prevented. And by this anchor also they wend (that is turn) her head about ; the which being done, they again weigh this anchor, and so drive with the tide as before. And this anchor (being but a small one) being thus employed is termed a **Kedger** ; and this working named the kedge or the kedging, or the vailing¹ down a river.

ADMIRAL. What anchor is that which you named the **Grapnel** ?

CAPTAIN. This kind of anchor is generally used for galleys and boats to ride by ; and thus far differs from the fashion and make of other anchors, that these have four flukes whereas the other have but two ; and that they want those stocks of wood which the other have. And when they are employed in any ship of war, the lighter and less sort of them are sometimes used upon boardings, and are thrown into the enemy ship, whereby to catch hold either of her gratings, sails, rails, chain-wales or the like ; and so having a chain made fast unto them, the ships become lashed (that is, made fast together), that so the enemy ship may be the surer boarded. There are also besides these some other grapnels, which have but three flukes ; and with these they use to sweep upon the ground under water

¹ A late use of this obsolete word.

for any hawsers, or small cables, that are sunk down into the bottom.

ADMIRAL. Before you proceed with any other kinds of your anchors, it is fit that you explicate these your sea-words, sweep and board.

CAPTAIN. **Sweeping** in our sense is when this three-fluked grapnel, being hung over the boat's stern, is thence let down into the sea or any channel, and by the rowing of the boat is dragged up and down upon the ground, that so it may light or hitch upon the hawser or cable that is slipped from some anchor, to which no buoy was fastened.

As for the sea word **Board**, it is variously used. As to **go aboard** a ship is to go into her. **Board and board** is when two ships are so close together that they touch. The **weather board** is that side of the ship that is towards the wind. To **make a board** or to **board it up** to a place, is to ply or make up into, or towards, the wind ; and this is done by turning it up, sometimes on the one tack and sometimes on the other. A **good board** is when a ship hath advanced well at one tack, or turning to the windwards. **Within board** is no more than to be within the ship ; **without board** no more than to be without it. **Overboard** is to fall, or to be thrown out of the ship into the sea. **By the board** is to lie down by the ship's side. To leave a land or anything else **a back board**, is to leave it astern or behind the ship.

ADMIRAL. What is that which is properly called a **Channel** ?

CAPTAIN. By a channel is meant the deepest part of any river, arm of the sea, creek or harbour's mouth ; some straits also and narrow seas are termed channels, as is that betwixt us and France,

and that which is called St. George's Channel, between Wales and Ireland. As likewise that in the West Indies termed the Channel of Bahama, or the new Channel ; through which the Spanish Plate fleets, and the most of all ships that sail far into the West Indies, do disembogue, being homewards bound.

ADMIRAL. What is a **Buoy**, and wherefore serves it ?

CAPTAIN. It is that piece of wood, empty barrel, or the like floaty thing, which is laid out to swim upon the surface of the water, almost directly over the place where the anchor is fastened in the bottom of the sea ; that by it, those that go in the boat, to weigh the anchor, may perfectly know where to find it.

And the words of our art belonging to this piece of service are these : **Stream the buoy**, that is, let the anchor fall whilst the ship hath way¹ : **Buoyant**, which is spoken of anything that is floating or apt to float : **Buoy up** the cable, which is to make fast some piece of floaty wood, barrel, or the like, unto the cable, somewhat near the anchor, that so the cable may not touch the ground when it is suspected to be foul (that is, rocky), for fear of being fretted and galled by the sharp stones and rocks. Also this word **Buoy** is given to such marks as are fixed and left out at sea, being fastened over some shelves or rocks, that lie dangerously under the water, that so they may be shunned.

ADMIRAL. You mentioned even now the buoying up of a cable ; but what mean you, when you say catch up the cable ?

¹ This is wrong. Mainwaring clearly explains that it is to put the buoy into the water, to stretch out the buoy rope, before the anchor is let fall. The term is still in use.

CAPTAIN. I do not remember the use of this word at sea, nor have I met with it anywhere above once, and that was in some observations made (by Sir Thomas Roe) in a voyage to the East Indies; where these words, catch up the cable, seem to be taken in the same sense as buoy up the cable, are.

ADMIRAL. What is that you term a **Stream-leach**? ¹

CAPTAIN. It is only a kind of foam, hanging together in length upon the surface of the water, and found near some shores where there is a concurrence and force of some currents.

ADMIRAL. We will return to your anchors, and tell me what a **Stream anchor** is?

CAPTAIN. It is only a small anchor made fast to a stream cable, wherewith to ride with a ship in a gentle stream, and in such fair weather that when need is they may stop a tide.

ADMIRAL. What are your words of art and command appropriated to the business of anchorage?

CAPTAIN. When the cable hangs perpendicular betwixt the hawses and the anchor, then the anchor is said to be **a-peak**. When it hangs right up and down, by the ship's side, it is said to be **a-cock-bell**. To **let fall** an anchor, is to let it sink into the bottom of the sea. The anchor is said to be **foul** when the cable, by the turning of the ship, is hitched about the anchor's flukes. To **fetch** or **bring home** an anchor is to weigh and heave it up from the bottom of the sea. The anchor is said to **come home**, when the ship drives away by the tide or force of the sea. To **shoe** the anchor is to put boards upon the flukes,

¹ There seems no other example of this expression, which only occurs in E. It is not given in the O.E.D.

fashioned like unto them, only they are made broader than the flukes are. And this is done when the ground is too soft for the anchor to hold of itself. To **boat** the anchor is to put it into the boat. As for the word anchoring or anchorage in general, it is to let the anchor fall into the sea ; and good anchoring, and good anchorage, is when the water is not over-deep ; and the ground withal is good ; and it is good when it is neither over-hard nor over-soft, so that the best ground for good anchorage is either stiff clay or hard sand. And the best riding for a ship at anchor is when she rides out of the tide's way, and is land-locked ; that is, hath the shore so lying about her that the force of the sea and the wind is kept from her, howsoever the wind blows.

Now the words of command, used in the weighing of the anchors when the ship is to set sail, are : Fetch home an anchor, that is weigh it and bring it to the ship's side ; break ground, that is force the anchor out of the ground, where it lieth ; heave ahead, which is force the ship up towards her anchor with the capstan ; heave a-peak, which is (as aforesaid) to cause the cable to hang perpendicular betwixt the hawses and the anchor.

ADMIRAL. When formerly you spake of tides, I do not remember that you said anything of a **spring-tide**.

CAPTAIN. By that name I did not, yet intimated something that might express that way ; and therefore shall here add only thus much : that a spring-tide is said to be when, after the dead neap-tides, the tides begin to grow higher, and this is about three days before the full or change of the moon. And the top or

highest of this spring is in three days, and then the water doth heighten most with the flood, and lower most with the ebb ; the tides running much stronger and swifter than in the neaps.

ADMIRAL. You spake nothing of these **neap-tides** neither, until now.

CAPTAIN. I confess it ; and to understand these it is to be known that when the moon is in the midst of the second and last quarters, then these neap-tides fall out. And they are (as it were) opposites to the spring-tides ; and there are as many days allowed for the neaps, or the falling of the tides, as for the spring or rising of them. And it is further to be noted that in these neap-tides the water is never so high nor so low as in the spring-tides ; nor do the tides run so swift in neaps as at the springs. And as the highest of the spring-tides is three days after the full or change of the moon, so the lowest of the neaps is four days before the full and change ; and then the saying is, that it is deep neap. So that the sea word is, when the ship wants water so that she cannot be brought off the ground or out of the dock, that the ship is **neaped**. And the like is said when she is in a bad harbour and wants water to carry her out.

ADMIRAL. We have done now with all kinds of anchors belonging to ships, and with grapnels belonging to boats. It remains that you speak of all kinds of boats also ; and especially of such of them as appertain to ships of war, with the appurtenances due to them.

CAPTAIN. They are these : the long-boat ; the skiff, or shallop ; and the barge.

ADMIRAL. What manner of boat is that called the long-boat, and which is her peculiar use and service ?

CAPTAIN. The **long-boat** is the largest and the strongest of all such boats as are to be hoisted into a ship. And it serves for the portage of all weighty and ponderous parcels that are to be put into her ; as goods, guns, hogsheads of beer or wine, and all kinds of victuals. It serves likewise for the bringing aboard or shoring of all the men of the ship's company upon all occasions. And to this boat in peculiar belongeth her davit, which is a frame of timber set over her head with a shiver in it, into which is brought the buoy rope wherewith to weigh¹ the anchor, the which is also one of the main pieces of her employment. She hath also belonging unto her, her masts, sail, and oars, with her tiller to steer withal ; her **Thwarts**,² which are the seats whereon the rowers sit ; and her **Thowles**, which are those small pins between which her oarsmen put their oars when they row.

ADMIRAL. Wherefore serveth the **Skiff** or **Shallop** which you spake of, and what manner of boat is it ?

CAPTAIN. It is a smaller and lighter, and so a nimbler boat than the long-boat, and the peculiar employment of it is to row speedily upon all occasions, from one place or ship to another ; and this boat may also with more safety and convenience be brought to the ship's side, when the ship is at sea and the billows anything high, than the long-boat can. And in this boat the officers of the ship use to ship themselves, for the most part, when they go for the shore. And sometimes in a dead calm at sea this skiff or shallop, being well manned with musketeers and half-pikes, will make a good shift to board and take a small vessel or ship that is but badly manned.

¹ E reads ' buoy.'

² ' Thouts.'

ADMIRAL. What boat is that which you called the **Barge** ?

CAPTAIN. Barges are well enough known, as being frequently used upon every river leading to a city or town of traffic ; and they serve rather for bravery and state and ease (as to carry the Admiral and prime Captains) than for any other important service. And to these in particular beyond what other boats have, appertain their bails,¹ their tilts, and their seats ; the which seats are also trimmed with carpets and with cushions.

ADMIRAL. What are the peculiar words of art used in all these boats ?

CAPTAIN. They are : **Swift** the boat, and this is to make fast a rope by the boat's gunwale, round about it, and to that again to fasten the boat rope, and with this boat rope (which is also termed the gest² rope) the boat is towed at the ship's stern, and by this work of swifting the boat is well strengthened to endure her tow.

To **free** the boat, which is to cast water out of her ; to **man** the boat, which is to put men into her to row and sail her, and these men are called the boat's gang ; to **fend** the boat, that is to save her from being beaten against the rocks, shore or ship's sides ; to **wend** the boat is to turn the boat's head about. A **bold** boat is such an one as will live (that is endure) in a high sea, that is, a rough sea.

ADMIRAL. Are there no other kinds of boats belonging to a ship but these ?

CAPTAIN. Usually there are not, nor indeed usefully ; especially being capable to be hoisted within board ; for as for those **cock boats**, **wherries**, **jolly watts**, and the like, they are seldom regarded,

¹ ' Bales ' ; half-hoops to support the tilt.

² ' Gift.'

being over-tender sided, and too small to be made use of in any service when a ship is abroad at sea.

ADMIRAL. What other vessels have you, not to be hoisted within board, but necessarily attending great ships ?

CAPTAIN. Some great ships of war, which require very many men to man and manage them and are not capable by reason hereof to stow victuals enough for them within themselves (for a long voyage especially), and being withal deeply laden with heavy ordnance, as being men-of-war, do use to be attended upon to this purpose by some smaller vessels, as hoys and ketches.

ADMIRAL. What be these hoys and ketches ?

CAPTAIN. The **Hoy** is a small bark which saileth not with cross sails nor yards as ships do, but with sails cut into the form of mizen sails, and so like those carvells (which are much in use about Spain) will sail by far nearer the wind than any vessel with cross yards can possibly do.

As for **Ketches**, they are smaller vessels than the hoys, and yet so moulded and built that they will endure and live (as the sea phrase is) in any sea whatsoever ; and are withal of very good sail, and in that respect are very proper to wait upon great ships upon the service fore-mentioned.

ADMIRAL. There are vessels called **Frigates**, and they are generally but small ones ; what differences are there between them and a small ship or pinnace ?

CAPTAIN. As I know no difference between a ship and a pinnace but in the bulk and burthen, so I can take no notice of any difference betwixt a pinnace and a frigate ; unless it be in that they have no decks, nor bulkheads, but are all hold below ; for otherwise they have the same masts,

yards and shape. And these vessels are much in use with the Spaniards, especially in the West Indies, and so have gotten the denomination of Spanish frigates. And the most of these are very good sailers afore the wind, but not so good by a wind.

And thus I have reckoned up also all sorts of small vessels and boats used upon our seas ; not intending to say anything of galleys, which go for the most part with force of oars ; nor of those kinds of mis-shapen vessels amongst the Turks named caramasales ; nor the junks with the Chinese¹ ; being only for burthen and carriages ; as the galleys only for fight in southern and smooth seas.

ADMIRAL. Proceed then (as you promised) to make some observations concerning such great guns, as are most proper for ships of war ; and about the appurtenances due unto them.

CAPTAIN. I shall ; and especially touching those parts and particulars which herein are most considerable and proper for sea service. For otherwise if I should speak of this subject, and of great ordnance and the use of them in general and at large, with all such pieces of art as this mystery requires, it would ask a full treatise of itself. I shall likewise forbear to say anything in this place of the kinds of great guns which I conceive to be fittest and most serviceable for sea fights ; but will reserve it until we come to treat of the choice of the best ships of war, and for the present shall only describe the parts of a ship, where these guns are generally mounted, together with the carriages or trucks whereon they lie, and the necessaries due to them.

Now these parts of a ship, where these great

¹ Chyneses.

guns lie are those upon the decks, by the ship's sides, as also in the stern, as in the gunroom, and sometimes in the great cabin, and the master's round-house ; likewise in the forecastle. And those square holes through which the guns are thrust out are termed the ports, of which ports also we shall say more hereafter.

ADMIRAL. What mean you by a **Tier** of ordnance in a ship ?

CAPTAIN. When the deck of a ship hath great guns lying on both sides thereof, in a rank from one end to the other, this is properly termed a tier of ordnance. And some great ships have two of those tiers, one under another. And when the fore and half decks are also furnished with guns, it is counted for half a tier ; and the ship is said to have two tier and a half of ordnance.

ADMIRAL. What guns in a ship are those which you term the **Chase pieces** ?

CAPTAIN. The chase guns or pieces are those which lie as well right aft as right forwards ; but when it is said that a ship hath a good chase, it is ever understood of her chase forwards on ; and that is when she is so built that she can carry many guns to shoot right forwards ; whereas when the other is intended the word stern is always added, and the ship is said to have a good stern chase.

ADMIRAL. What is that termed the **Carriage** of a great gun, or as at sea, her **Truck** ?

CAPTAIN. It is that frame of wood whereon the gun is laid (or as they term it, mounted). As for the word **mounting**, when it is applied to a piece of ordnance, it is with all gunners taken in a double sense ; for to lay guns upon the carriages is called the mounting of them, and therefore the saying is that the ship's guns are not mounted

when they lie in the hold, or upon her deck, and are not in their carriages. Likewise when those guns are in their carriages, and a shot to be made out of any of them, the word of command is, when the mouth of the piece (which is called her muzzle) lieth lower than the mark that is to be shot at : Mount the piece higher.

On the contrary, when it lieth too high, then the word is : Let the muzzle fall. As for the word **dismounting**, it is used either when a gunner takes the piece out of her carriage, or when, though lying still in the carriage, she is disabled from use by some shot or otherwise.

ADMIRAL. Describe and nominate the several and distinct parts of these carriages or trucks for great guns, used on ship board.

CAPTAIN. They are these : (1) The **Cheeks**, and they are the side pieces of the carriage. (2) The **Bolts**, which are certain rings whereto are fastened the breeches and tackles of the ordnance. (3) The **Cap squares**, which are broad pieces of iron, made fast to either side of the carriage, and their use is to lock over the trunnions of the gun, over which they are made fast with an iron pin, having a forelock in it. (4) The **Axle-tree**, being that piece of it which bears up the carriage and the weight of the gun. (5) The **Trucks**, and these are the wheels which are put upon the ends of the axle-trees. (6) The **Linch¹-pins**, which serve to hold on these trucks. (7) The **Beds**, being those pieces of thick planks which lie next under the guns. (8) The **Coynes**, and they are those pieces of wood, fashioned like wedges, and serve to raise higher or let fall lower the breech of the gun. (9) The **Breechings**, which are those ropes which make fast the guns to the ship's sides.

¹ ' Lince.'

ADMIRAL. What other appurtenances belong unto the guns in a ship ?

CAPTAIN. The **Powder**, whereof are two kinds ; the serpentine powder, which is not corned ; and the common corned powder. The great shot, whereof there are many sorts ; as the **Round shot**, which flies farthest, but doth least spoil ; the **Cross-bar shot**, which is a round shot with a bar of iron through it ; the **Langrel shot**, which is made like a shackle, and may be shortened, when it is to be put into a piece, and flies out at length when it is shot out ; and it hath half a bullet, either of lead or iron, at each end ; the **Case shot**, or **Burrel shot**, which is any old pieces of iron, musket bullets, stones or the like, the which being put into cases, made for the turn, either of paste board or leather or linen bags, are thus shot out of great guns, to execute upon such as at boarding show themselves upon the decks.

To these great guns also belong their **Ladles**, which are pieces of copper, made fast unto staves of wood, and serve to convey the powder into the cylinder, that is the bore of the piece, or concavity thereof ; but these kinds and fashions of ladles are not very convenient to be used in ships in a hot fight at sea, and that as well in respect of peril as cumbersomeness ; and therefore instead of them, they either put these brass ladles upon stiff ropes, which may be better managed betwixt the decks, or use cartridges.¹

ADMIRAL. What are these **Cartridges** ?

CAPTAIN. They are bags made of canvas, or thick paper ; whose diameter or breadth is to be somewhat less than the cylinder or bore of the gun, that they are to serve ; and withal they are to be of such a length as with the breadth may

¹ ' Carthredges.'

contain just so much powder as is a due charge for that gun. Now these cartridges are made and proportioned upon certain frames of wood, curiously and cautiously fitted to the bores of the pieces that they are made for, and are termed **Formers**.

There are besides these certain cases of latten, wherein these cartridges are carried about the ship in the time of a fight, to avoid the danger of any accidental firing by the way, and these likewise are named formers.

To this purpose also, for the preservation against firing, there are in use certain barrels, called **Budge barrels**, which have a purse of leather made fast to their heads, and being filled with powder are by these leather purses well secured from being accidentally fired; and are of very necessary use, both at sea and land.

ADMIRAL. You formerly named the **Trunnions** of a great piece, but explained not what they were.

CAPTAIN. They are only those knobs or bunches of the gun's metal, which come from the sides of the guns and do bear them up upon the cheeks of the carriages.

ADMIRAL. How do you understand the word **Metal**, when it has reference to great guns?

CAPTAIN. It is to be taken not of the quality, but quantity of the metal; as in the disparting of a piece, when they say the piece or gun lieth under metal, the meaning is that the mouth of the gun is laid lower than her breech, and so on the contrary. And when a piece lieth point blank (that is to say, right with the mark) then the saying is that she lieth with her metal. And if a great gun be thick of metal in any part, the phrase is that she is well fortified in that part; and so on the contrary.

ADMIRAL. What is this disparting of a great gun you here speak of ?

CAPTAIN. **Disparting** is the finding out of the diameters, or the differences of the thickness of the metals, between the breech of a great gun and the mouth or muzzle of her ; that so an equal and direct shot may be made, by laying of the mouth equal with the breech of the piece.

Now this is done sundry ways, but the most ready and surest course is by putting in of a straw, or small twig, into the cylinder or concavity of the gun through the touch-hole, and so taking the true depth of the metal in that place ; to remove it from thence, and then set it on the same manner at the mouth of the piece ; by which will exactly and visibly be discovered the difference of the thickness of the metal betwixt the mouth and the breech of the gun, the which to make a true shot, must be mounted accordingly. But because the dispart cannot be thus taken but when the piece is unladen, and withal will ask more time than the haste of present service can perhaps allow, an able gunner will perform this by the mere practice of his discretion ; allowing, in the making of his shot, so much in the abasing of the thinness of his piece's metal at the muzzle, as may answer the thickness of its metal at the chamber or breech ; and so the cylinder and concavity of the gun be laid upon a straight line, the which otherwise, if considered according to the surface of the metal and levelled thereafter, reason tells must need carry the shot out of a level range, and very much overshoot the mark.

ADMIRAL. What mean you when you say that the touch-hole of a great gun is cloyed, and what is the difference betwixt cloyed and spiked ?

CAPTAIN. When anything is fallen into the touch-hole of a piece, so that the priming iron cannot make way for the powder within the chamber or breech of the gun to take fire at the touch-hole, it is said to be **cloyed**. But when any nails of iron or the like are driven into the touch-hole, so that no use may be made of the gun for the present, then the gun is said to be **spiked**; so that the difference between the cloying and the spiking up of a touch-hole seemeth only to be that the one is spiked of set purpose; the other cloyed by accident or carelessness.

ADMIRAL. What is the priming iron, and what is it to prime a great gun?

CAPTAIN. **Priming** is properly the fitting and filling of the touch-hole of a great gun with dry and fine powder, and withal there is used a small sharp iron (which is called the **Priming iron**) which is thrust down into the concavity of the gun through the touch-hole, to pierce the coats of the cartridges, that so the powder contained in them may take fire. And if the powder in the touch-hole take fire, and the rest that is in the gun doth not, the saying then is, that the gun is not well primed; to prevent which the touch powder is made small and perfectly dry; the which the gunner carrieth about him in a great horn, and this horn is named the **Priming horn**.

And this word priming is also used when the first colour or ground painting is laid on or upon any part of a ship, that some colours may afterwards be laid upon it.

ADMIRAL. Everyone knows that a sea fight is to fight with ships at sea, though very few know how to do it; but what are those which are termed the **Fights** in a ship?

CAPTAIN. Those red cloths which are hung

up sometimes round about upon the cage-works and in the waist of a ship, and therefore also called waist cloths, serving to blind an enemy from having a perfect view and aim at the men as they pass to and again upon the decks, are likewise termed the fights. Also any bulkheads afore or abaft, out of which the murderers, or small shot may be used in covert, or under any part in general where men may hide and cover themselves and yet use their arms, are termed the **Close fights**.

ADMIRAL. What are these **Murderers**?

CAPTAIN. They are small iron or brass pieces, which have chambers put into them, and are most usefully used at the bulkheads of the fore-castles, half-decks, or steerages. And they have a pin of iron named a pintle, which is put into a stock of wood, and so they are fastened and traversed. And the main employment of these murderers is to scour the decks; that is to murder such men as enter upon the decks at an enemy's boarding.

ADMIRAL. What are those you call **Chambers**, which you said were put into these murderers?

CAPTAIN. They are charges, made of brass or iron, and they are put in at the breeches of these murderers or fowlers (for they carry both these names) and then being there fired, force out the shot out of the murderers. That part also, and so much of any great gun, as doth contain in it the charge of powder, is called the chamber of the gun.

ADMIRAL. What is meant in your sea acception, by the word **Amain**, when they are upon a fight at sea?

CAPTAIN. When a ship of war crieth **Amain** to another ship, it is as much as to bid defiance to her, or to command her to yield. Also to **wave amain** with a naked sword, is as much as to

bid another ship to strike her topsails ; and to bid her **strike amain**, is to call to her to let fall her topsails.

ADMIRAL. How is the word **Armed** taken in sea phrase ?

CAPTAIN. When a ship is every way provided for to be a man, that is, a ship of war, she is said to be armed. Also when some rope yarn or the like is rolled round about the one end of the iron bar of a cross-bar shot, it is said in our sea language to be armed ; and this is done partly that the shot may the better be rammed home to the powder by the rammer, but especially to prevent that the sharp end of the bar which lieth foremost within the bore of the gun may not catch into any honeycombs which may chance to be within the cylinder of the piece, when it is forced violently out by the force and firing of the powder ; and thereby the breaking of the piece endangered.

ADMIRAL. What are these honeycombs, and what is the rammer of a great gun ?

CAPTAIN. The **Rammer** is a staff with a round piece of wood at the one end thereof ; the outermost part of which round piece is made fast unto it, and withal made somewhat less than the bore of the gun that it serveth for. And the use of it is to drive home the powder, close up to the breech of the gun ; and then the shot to the powder ; and last of all the wad (that is the stopple, which keepeth the shot from rolling out) is by it also put close to the shot. All which is done by this rammer, and the work styled the ramming home of the powder, shot, and wad. Now at the other end of the staff of most of these rammers there are also rolled certain sheep skins, fitted to the bore of the piece, so that they may conveniently be thrust into the concavity thereof ;

and herewith the piece is made clean ; and this is termed the sponging of the piece. And this sponge and rammer are also fitted to the ends of some stiff rope (as the ladles sometimes are also), because, as aforesaid, they may be better wielded betwixt the decks than the staff rammer can be. And it is to be noted and carefully observed that a great gun (and especially if a shot hath been made out of her lately before) is always to be well sponged before fresh powder be put into her again ; lest some spark of fire should chance to be left unextinguished within her, in some secret honeycomb, and so the ladle full of powder that shall be first put in her be by it fired, to the imminent danger of him that ladeth, that is, that chargeth, her.

ADMIRAL. Where and what be these **Honey-combs** ?

CAPTAIN. They are certain small holes, or rugged and indented parts, within the concavity of the great gun ; wherein some sparks of fire made by the firing of the powder, may be received and so (as aforesaid) sometimes the breaking of the piece, sometimes the spoiling of the gunner, occasioned.

And these are the particulars which I conceive necessary to be expressed concerning such great guns as are belonging to a ship of worth and war.

ADMIRAL. You are, then, according to your promise, to conclude this subject of our discourse with the explanation of such particular words of your art as have hitherto been omitted. And I shall do my best to remember them unto you, and do you interpret them. And in the first place tell me what are those you call awnings ?

CAPTAIN. An **Awning** at sea is nothing else but when a sail, or the like, is hung over any part

of the ship above the deck, to keep off the vigour of the sun's heat, or the wetting of dew.

ADMIRAL. What mean you by this word **Berth** or **Berthing**?

CAPTAIN. When a due or fit distance is observed between ships, either in riding at an anchor or under sail at sea, so that they may the better keep clear one from another and not be endangered by falling foul one upon another, it is termed a berth. And this word berthing also is a word of our art, when a ship's sides are, in building, raised or brought up.

ADMIRAL. What mean you by the **brooming** of a ship?

CAPTAIN. When a ship is brought on ground, or upon a careen, that burning which is then used, with reeds or straw, or the like stuff, to fetch off the filth and soiling, is called brooming; and this is not much differing from that which is called graving, of which we have spoken formerly.

ADMIRAL. How is the word **Butt** taken in sea phrase?

CAPTAIN. A butt in sea language is properly the end of any plank that joins to another on the outside thereof, or rather outside of the ship, under water. And to spring a butt, is when a plank is loose at one end; and therefore great ships are bolted at the butt heads, that is, at the plank's end.

ADMIRAL. Is not that you call rabbeting a word also belonging to the ends of the planks?

CAPTAIN. **Rabbeting** is the letting in of the planks to the keel of the ship, the which part is answerably hollowed away, that the planks may join the better and closer; and this is only used in the rake and in the run of a ship, and not in the flat floors; and this hollowing away is

called the rabbeting of the keel, or the rabbet of the keel.

ADMIRAL. What is that which mariners term their **Sea card** or cart ?

CAPTAIN. It is a geographical description of coasts, with the true distances, heights, courses, and winds leading unto them. And this sea cart is also called a plot : so that to **prick a plot** is to note down the traverse of the ship's way, when she is at sea ; and then comparing it with judicious observation, thereby to find out where the ship at all times is ; and so from time to time to make a small prick or mark in the plot ; and by keeping an account of the several days and ways that the ship hath made and sailed in, to be able to give a rational guess how near or far off the ship is to the port she is to go to.

ADMIRAL. What mean you by the word observation here, in that sea phrase ?

CAPTAIN. **Observation**, or that we term observation at sea, is only to take the height or elevation of the sun, or of a star ; which is performed by some mathematical instrument, whereby may be known in what degree of latitude a ship at all times is.

ADMIRAL. How is this to be done, with your mathematical instruments ?

CAPTAIN. There are so many printed tractates of this subject that I shall not need (especially in respect that these our conferences are intended another way) to enlarge myself much this way ; and therefore shall deliver some brief notes only, for necessary illustration's sake.

It is therefore to be understood that the latitude here intended is taken and meant in a strict and more especial sense, for the distance of any part or place from the equinoctial line ; be it either to

the northwards or to the southwards of it ; and the rise or bound from whence this account is to be given or taken is the Equator, as the subject whereby it is to be measured is the meridian.

Now this latitude is thus found, either by the height of the sun, or by the height of some star. The height of the sun may be known by the astrolabe,¹ cross-staff, back-staff, quadrant or the like (instruments familiar with every mariner). And is to be practised and observed when the sun is just at the meridian or point of noon ; and it may be known, upon and by the instrument, when it is just noon by a punctual observation, whether there be an increasing or a decreasing, in the working, upon the degrees figured upon the staff or instrument ; for if it increase it is not then full noon ; if it decrease it is past for that day. This being observed and exactly wrought, the degrees found upon the instrument, with the odd minutes, are to be subducted from ninety degrees, and the remainder will show the latitude where the ship was that day at noon. But because this rule holds only true at the very time when the sun is in the equinoctial itself, which lasteth but a small while ; therefore when the elevation or latitude is to be taken at any other time, it is to be wrought with this alteration : having (as formerly) taken the just height of the sun at noon, upon the degrees of the staff, the true degrees of the sun's declination from the equinoctial is to be searched and found by the table of declination (which table is to be found in the possession of every seaman that taketh charge). And if the declination be there found northerly, it is to be subtracted from the aforesaid altitude, if southerly, it is to be added to that altitude. And

¹ ' Astralobie.'

thus is the true height of the equinoctial above the horizon to be taken every way ; and this height of the equinoctial above the horizon being subtracted from the degree of ninety (as aforesaid) will be the true latitude of the part where the ship then is. And this is an observation made by the height of the sun.

ADMIRAL. And how is this to be made by the star ?

CAPTAIN. It is done by the star by the same course as it was done by the sun. As by observing when the star that you make choice to observe by, is attained to some certain altitude or height above the horizon ; and then subtracting the declination if northern, and adding it if southern, (being exactly done) it will at any time shew the degree of latitude.

And these are the usual and general ways whereby observations of latitudes are made at sea. Only one thing more is herewithal to be observed ; that whensoever the observer finds himself to be betwixt the sun and the Equator or Equinoctial, either southwards or northwards, the number of the degrees, or the complement that is found upon the instrument, is to be added to the declination of the sun ; and the total produce the true elevation ¹ of the place.

ADMIRAL. Have you no other ways or courses to observe by, but only these two ?

CAPTAIN. There is another new way in agitation, grounded upon the proportion betwixt the magnetical inclinatory needle, and the latitude of the earth ; the which needle (they say) will at every point of latitude conform itself to certain angles with the axle of the earth, proportionally to the degrees of latitude. But in regard that

¹ *I.e.* latitude.

this invention is as yet so novel, as that it is rather in contemplation than action, I shall forbear to speak farther of it, until experience hath produced a farther approbation.

ADMIRAL. Since you have intimated thus far, touching the observing of latitudes, let us hear somewhat also of longitudes; as, what they are, and how to be found out.

CAPTAIN. Longitude, as it is received in our sea sense or in a geographical sense, is the distance of any part or place from the first meridian (whether this meridian be placed or fancied, as the Ancients would have it, at the islands of the Canaries, or according to the later geographers in the islands of the Azores), as these places or parts lie either eastwards or westwards from this meridian; and then the subject wherein the number of degrees may be taken may either be the Equator itself or a parallel.

But withal it is to be noted that the longitude of a place measured in the Equator, which is the greater circle and where the degrees will answer to sixty Italian miles, is greater (in respect of a true distance) than when it is measured in any other parallel, where the circuit is less, and by consequence the degrees less.

ADMIRAL. You have here told me what the longitude is; let me also know how it is to be taken.

CAPTAIN. I can more readily and surely tell you how it is not to be taken (or rather indeed that it cannot be taken at all). For it is not (I am sure hath not hitherto been) found by the industry of travel to any exactness, because all voyages both by sea and land are very irregular and uncertain, through some impediments; as rocks, mountains, rivers, by land; or contrary

winds, currents, tides, and the like by sea ; whereby passengers are forced and kept off from a straight and direct way ; or by the ignorance of mariners, which seldom pass a necessary distance upon a discovery, or if they do, yet are not able perfectly to delineate their journals, as an able cosmographer must expect, to give any tolerable satisfaction. Nor can this longitude be found out by any magnetical instrument,¹ because there were never found out any prefixed points in the Equator, betwixt East and West as there are betwixt North and South ; so that nothing can proceed out of the mere nature of the earthy globe, whereon to ground any difference of longitude.

ADMIRAL. But yet some ways and courses have been offered and propounded by the learned to the purpose, the which I desire that you would briefly touch.

CAPTAIN. There hath been so, but accompanied with so many circumstances, niceties, uncertainties and accidents, as all their rules and propositions, in respect of proof and use, have fallen out to as much as nothing.

For one way propounded hath been by eclipses of the moon, and this to be acted by the observation upon some astronomical instrument, at what punctual hour the eclipse begins at that place, of which the longitude is to be required : for if the eclipse begins in that and the place requiring ² both alike or at one time, then is there one and the same longitude in both places. If there be a difference, then the less sum of hours is to be

¹ The variation of the compass was found to be of some use in estimating the longitude, before the invention of the chronometer.

² Of which the difference in longitude is required.

taken out of the greater, and there will remain either hours or minutes ; if hours then multiply the same by fifteen ; if minutes divide them by four, and add the difference so found unto the longitude of the eclipse,¹ if it appear there sooner ; if later, then subtract them from the longitude formerly known ; if there remain any minutes after the division, multiply them by fifteen : and so shall you have the minutes of degrees.

And this indeed might prove an undoubted way for the doing of this work, if exact astronomers were surely found in both places, at one and the same time, and a strict correspondency held betwixt them ; the which how (almost) impossible it is to be obtained is obvious to every judgment.²

A second way offered to this purpose, as feasible, is by a clock, watch or hour glass ; and the working thereby is by apting any of these to run twenty-four hours without any intermission ; that so, when there is a departure from the place where any one is, to the place of which the longitude is required to be known, by the help of the astrolabe it is to be rectified and set just at the instant, when the departure is from that place to the other. And in the interim, the said watch, clock, or hour-glass is diligently to be kept in motion ; and at the arrival where the place is, a stay is to be attended, until the index of the watch doth precisely point out some perfect hour ; and at the same instant it is again to be found by the astrolabe what hour it is at the place where you are arrived ; for if the astrolabe and watch doth both agree in one, it is certain enough that there is no difference of longitude

¹ He means of the first observing station.

² This method was first suggested by Hipparchus *c.* 150 B.C., but proved impracticable for the reasons given here.

betwixt those two places ; for it is evident that the voyage lay north and south under the same meridian. But if there be a difference, either in hours or minutes, they are to be reduced to degrees. And this indeed were a commendable way were it not that, either by rust or some thelike accident, this clock, or watch, or hour-glass may move unequally. So that there can be no certain and infallible observation made hereby, but by the automaton or perpetual motion ; which is more unlikely to be found out than the longitude itself.¹

A third course to this end is propounded (by some both old and new writers) by the observation of the distance betwixt the moon and some known star, situated near the ecliptic ; and herein (by the help of astronomical tables) the true motion of the moon, according to the longitude, is to be observed at the time of departure from some certain place. Secondly, the degree of longitude of some fixed star nigh unto the ecliptic, either preceding or following the moon, must be known. Thirdly, the distance of the moving of the moon and that star must be inquisited. Fourthly, this distance thus known, the cross-staff is to be used, and the cross thereof to be moved to and fro until the centre of the moon at the one end of it, and the fixed star at the other end, be beheld ; whereby, by the degrees and minutes marked on the staff, the distance of the moon and the star corresponding to the place of the observation may be found expressed. All which being done, the distance betwixt the moon and the foresaid star, which was first calculated, is also to be set down ; and the lesser being subtracted from the greater, the remainder will express the difference

¹ A hundred years later John Harrison invented the necessary time-piece.

be it never so little ; and this again being divided by the moving which the moon maketh in one hour ; the time may be known, in which the moon is, or was, joined with the first distance of the foresaid star, and that time converted into degrees and minutes ; the rest will be performed either by addition or subtraction of the product thereof, to or from the meridian ; and herein, if the distance between the moon and the fixed-star of your observations be the lesser, then the degrees and minutes are to be added to the known latitude ; and thus may be found the place of the observation to be more eastward. But if it be greater, then must the degrees and minutes be subtracted from the known longitude and the place of observation, and it will be found more westwards. But withal note here, that these rules are only so far true as that the moon be supposed to be more westward than the fixed star ; for otherwise the working is to be clean contrary ; for if the distance betwixt the moon and the fixed star be lesser, then the degrees and minutes from the known longitude are to be subtracted, and so shall the place of the observation be more westwards ; but if it be greater, then are to be added the degrees and minutes unto the known longitude, and the place of the observation will be found to be more eastwards.

Now this, though it be accounted the surer way of any of the former, yet must needs be subject to many failings, by its over-intricateness and niceties.¹

A fourth way propounded to find out longitude,

¹ This method of 'lunars' was impracticable at that time. The difficulties of exact observation at sea with the clumsy instruments were too great ; and the irregularities of the moon's motion not sufficiently well known.

is by observation of differences in the sun and moon's motion ; wherein the postulates or axioms being granted, the manner of the practice is thus to be wrought by the golden rule ; if the difference of the sun's and moon's motions be forty-eight minutes of an hour, in three hundred and sixty degrees, what will it be in ten ; and herein the fourth proportional number will be seventy-five degrees, the distance of the longitude of the place assigned in west longitude ; and from which number the longitude from thence, being subtracted, the remainder from three hundred and sixty will shew the longitude. And if the moon in the place assigned come sooner to the meridian so much is to be counted in east latitude. And thus we have four several courses propounded, for the knowing and finding out of longitudes : of which this last, though it be certainly the most preferable yet it must be granted that whosoever practiseth it had need to be very curious, and a better arithmetician than most of our common masters.

ADMIRAL. Let us now return to the remainder of our sea-words. And tell me, what you mean by a ship's traverse, which you mentioned not long since ?

CAPTAIN. The **Traverse** of a ship is her way or going with respect to the points of the compass, upon which she sails, and to the angles which she makes in going, as also with what speed she made in them. As a man is said to traverse his ground when he goeth, or traceth sometimes one way sometimes another, as a ship doth, when in her way she makes these angles.

Now mariners use diligently to note how many hours the ship hath gone upon every particular point, as also what sails she had abroad at all those

times, and how near the wind she did lie in all those ways ; as also (as aforesaid) what speed she made in them. And they use to set them all down upon a board, or pasteboard, which they call the traverse board. And this being done, they draw a line from the place where they last were to the place where they last made the prick ; and so they give a conjecture at the whole course that the ship hath made, by the distance considered of these two pricks one from another set upon their sea-charts ; and how far she is advanced upon her right and due way in her former traverses. And this they call a **dead reckoning** ; and if at the same time they can also make a good observation, and take the height of the sun, and then find the observation and the dead reckoning to agree and concur, they rest the more confident of the place and part where they are. But if it prove they agree not, they then rely more upon the observation than the dead reckoning, and reform that by the other.

ADMIRAL. For the better understanding of this passage it will be necessary that you describe your **Traverse board**.

CAPTAIN. It is a smooth board or thick paper, which hath the thirty-two points of the compass marked upon it ; and it hath small holes on every point, and small pegs fitted unto them, with the which the helmsman, by removing, does keep an account, and score with them upon the traverse board how many glasses (that is hours) the ship hath gone upon any point of the compass. And this work being from time to time shewed unto the master or pilot of the ship, he hereupon frameth his conjectures and judgment. And this traverse board is for the most part always to be found in the steerage room.

ADMIRAL. What understand you by the sea word **Crank** ?

CAPTAIN. A ship is said to be crank-sided when she will bear but a small sail. And when a ship cannot be brought on ground without danger of an overthrow, she is said to be crank by the ground.

ADMIRAL. In what sense use you the word **Cut** at sea ?

CAPTAIN. This word with us hath various senses. As to cut the sail is to let it fall down from the yard. A well-fashioned sail is said to be well cut. To cut the cable in the hawse is to cut it quite in twain, close by the hawse ; and this is done when there is no leisure to weigh up the anchor in such haste as some accident requires. And the like is sometimes done, when they are forced to cut the masts by the board.

ADMIRAL. What is **disemboguing** or to disembogue ?

CAPTAIN. To disembogue, or a disemboguing, is when a ship worketh herself out, or passes out, of the mouth of some deep gulf, and a gulf is that part of a sea which is large within and towards the bottom, but hath no issue out but at the mouth ; and that mouth in comparison of the breadth and largeness within, is straight and narrow. So that this phrase of disemboguing is only used at the issuing out of a ship from within a gulf ; and not at a passage out of a harbour.

ADMIRAL. What are those parts of the sea which you particularly name **Sounds** ?

CAPTAIN. Any great indraught of sea, passing betwixt two headlands, having no issue through it, is called a sound, as Plymouth Sound, &c. But when with us in these parts it is said The Sound, without farther distinction, it is generally

received for that in the East Countries, through Denmark, as being the most remarkable of all other in this part of the earth.

ADMIRAL. What is that which you term **Sounding** in your sea tongue?

CAPTAIN. Of this we spake before, when we made mention of the deep-sea-line. For to sound is only to try with a line the depth of the water in the sea. It is also in sea phrase said : Sound the pump, and that is when a small line is put down into the pump, by some weight to carry it down, that it may be known what depth of water there is in the pump.

ADMIRAL. Have you not a sounding-line and a sounding-lead besides your forementioned deep-sea-line?

CAPTAIN. We have both.

ADMIRAL. What are the differences betwixt this line and lead, and the deep-sea-line and lead ; since both of them are used to fathom and find the depth of the sea, in the place where they sound.

CAPTAIN. The sounding-lead differs not from the deep-sea-lead save only that it is neither so weighty nor so long. But the differences betwixt the sounding-line and the deep-sea-line are many, for : (1) The sounding-line is bigger than the deep-sea-line ; (2) The sounding-line is cut to twenty fathoms in length or thereabouts, but the deep-sea-line to an hundred, and sometimes two hundred fathoms ; (3) The deep-sea-line hath its first mark at twenty fathoms, and then at thirty, forty, and so upwards, whereas the sounding-line is marked first at two fathoms with a piece of black leather put into it betwixt the strands, and then at three fathoms with the like, and lastly, at five fathoms in depth, it is marked with a piece of white cloth, or white leather, and so marked no

further ; (4) And lastly, the sounding-line may be used when the ship is under sail and making way, but the deep-sea-line cannot be employed to any certainty, unless the ship be brought on the back stays and so lies still for the time.

ADMIRAL. What is that which is termed a **Magg**,¹ as when you say, the sounding line, or the deep sea line, hath a magg, or two, or more in it ?

CAPTAIN. This magg is only some fracture of some of the twists of these lines ; the ends whereof, sticking out and ravelling out withal, evidence the danger and likelihood of the lines breaking in that part.

ADMIRAL. When is a ship said to be **muzzled** ?

CAPTAIN. When upon any occasion, a ship's main-course is filled with wind, and her foresail brought on the back stays, whereby she lies and makes little or no way in the sea, she is said to lie muzzled. And this also is named the **bridle**, or the bringing of a ship to her bridle.

ADMIRAL. We have certain nets for our ponds and rivers, which we call **Drags** ; but what are those which you call so ?

CAPTAIN. Whatsoever hangs over the ship's side into the sea, as shirts, sea-gowns, or the like, are termed drags. Also when the boat is towed at the ship's stern, or when there is anything, whatsoever it be, that may hinder the ship in making her way when she is under sail, they are by seamen termed drags.

ADMIRAL. What means your phrase **iron-sick** ?

CAPTAIN. A ship or boat is said to be iron-sick when the spikes are so eaten away with rust, or when the nails are so worn that they stand

¹ The word is not in Mainwaring ; nor in the O.E.D., though that gives a single quotation of ' magged ' from Smyth.

hollow in the planks ; and hereby also the ship leaks or takes in water.

ADMIRAL. What is that you call **Keckle** or keckling ?

CAPTAIN. This term is only applied to the cables and bolt-ropes, when there is any galling of the cable in the hawses, or of the bolt-ropes against the ship's quarter. To remedy which some small rope is twisted about these parts ; and this is called to keckle the rope.

ADMIRAL. What mean you at sea when you say **lash** this or that thing ?

CAPTAIN. When anything is bound up to the ship's sides, as pikes, muskets, or a butt of water, or beer unto the main-mast ; or any piece of timber to make fishes ; or that any spare topmasts be made fast to the ship without board, as the other were within ; this fastening is termed lashing.

ADMIRAL. But what are those you call **Lashers** ?

CAPTAIN. These are properly and peculiarly those ropes only which bind fast the tackles, and the breechings of the ordnance, when they are held and made fast within board.

ADMIRAL. What mean you by the word **Lasking** ?

CAPTAIN. When a ship sails neither close by a wind, nor fully before a wind, she is then said to go lasking. And the same is meant when it is said that the ship goeth veering ; or goes with quarter winds ; or goeth at large, or room.

ADMIRAL. How understand you these words **let fall** ?

CAPTAIN. It is generally used for the putting abroad, or spreading of any of the sails when the yards are aloft. But if the main-yard or fore-yard be struck down upon the decks, so that the

sails may be loosed before the yards be hoised, then they say loose the sail, and not let it fall.

And this word of command is properly used when they intend to put abroad the mainsail, foresail and spritsail. But as for the topsails, the proper saying is, heave them up, or rather, heave them out ; for these do always lie in the top. And as for the mizen, the word is, set the mizen, but at no time, let it fall.

ADMIRAL. What is the signification of the word **Loom** ?

CAPTAIN. The looming of a ship is that show or view taken of her which appears when she is first discerned at sea. And then they say, if she seems great, that she looms a great sail ; and so on the contrary.

ADMIRAL. When is it said that a ship hath a **List**¹ ?

CAPTAIN. When a ship heels to starboard, or to port, seamen say that she has a list that way, and this is said though it happen by an unequal stowing in her hold ; but more properly when out of her own mould, she hath an inclining to one side more than another in her swimming.

ADMIRAL. What mean you when you say that a ship doth **lie under** the sea ?

CAPTAIN. When a ship is forced to lie a-hull, and so hath her helm made fast to the lee-side, and that the sea (that is, the billows of the sea) break upon her bow and upon her broadside, the ship is then said to lie, or to be, under the sea.

ADMIRAL. What intend you when you say : **Man** the ship ?

CAPTAIN. A ship is said to be manned when she is sufficiently supplied with men ; but of this sufficiency more shall be said hereafter. Also

¹ ' Lust ' ; the spelling used also by Mainwaring.

when a ship is to make show of all her men she hath in her upon occasion, this is called the manning of the ship. Likewise when men are required to heave at the capstan, the word of command is : man the capstan. Also when men are commanded to go up into the tops the word is : man well the tops ; and the same they say of the boat. When any person of rank likewise is at the ship's side to enter the ship, the command is : Man the ship side, or man the ladder ; that so there may be hands ready to shew respect, and to help him in.

ADMIRAL. You have formerly mentioned certain nails, which you called spikes but told not what they were.

CAPTAIN. These **Spikes**¹ are great nails of iron with flat heads, and they are of sundry lengths ; some of them of one foot or two. And some of them are made ragged with jags, which cannot by any means be drawn out again, and these are employed in many parts of a ship for the fastening of the timbers and planks together.

In very foul weather also at sea, the practice is to fasten a coin or the like piece unto a deck with these nails, close under the breech of the carriages of the great guns, to keep them close and firm unto the ship's sides, lest otherwise they should chance to break loose when the ship rolls, and so endanger the breaking out of some head of a plank ; and this is called the spiking up of the ordnance.

ADMIRAL. You have also formerly mentioned certain coins belonging to the use of the great guns. But have you not some other **Coins** or **Quoins** besides those ?

CAPTAIN. We have two sorts of quoins besides

¹ ' Speekes.'

them : the one is of those which are termed can-tique quoins, and these are short ones, and framed with three edges, and they serve to put betwixt the casks that lie in the hold, to keep them from rolling and beating one against another. The other sort is of those which are termed standing quoins, and they are made of barrel boards, being about four inches in breadth and of a fit length to be drove in betwixt the ends of the cask, about two or three hoops from those which are called the chine hoops, being next to the chines or very ends of the cask, and these also serve to keep the butts from jogging.

ADMIRAL. When you spake even now of spikes, you particularised nothing of those called **Marling spikes**.

CAPTAIN. They are only small nails of iron, made of purpose for the splicing together of small ropes, as also to open the bolt-ropes when they sew them into the sails.

ADMIRAL. Which are those which by a peculiar name to a ship are called **Mats** ?

CAPTAIN. They are not those which are called mats on the shore ; though many great ships there are whose fair cabins are floored with these also ; but these our sea mats are broad clouts, weaved and platted of sennit and thrums, and some of sennit only. And their use is to preserve principally the main and foreyards from galling against the masts at the ties, and at the main¹ wale of the loof. They are sometimes likewise employed to keep the clew of the sail from the masts ; as also they are fastened upon the boltsprit and beakhead to rescue the clews of the foresail.

ADMIRAL. What mean you by the word **Mooring** ?

¹ ' Gun ' in the earlier MSS.

CAPTAIN. To moor a ship is so to lay out her anchors as may best fit for the safety of the ship in her riding at an anchor.

Now there are divers kinds of moorings: as to moor across or thwart, and that is by laying out one anchor on the one side of a river, and another on the other side, right against that, and so as that both the cables may bear together as well for ebb as flood. To moor alongst, which is to lay one anchor just in the middle of the stream and another right ahead. And this is done, when there is any peril of the ship's driving ashore; for thus both the cables will bear together, and so prevent that danger. To moor watershot, and this is in a manner quartering, and in a mean betwixt both the others; as being neither across the tide, nor alongst the tide. To moor for east or west, or south-east, &c., as the point is upon which the ship is moored. And this is done when the ship being brought into any place of riding, the Master and his Mates look out and observe which way, and where and upon what point of the compass, the wind or sea is likeliest to endanger the ship most, and there they lay out an anchor. And this is to be done and noted, that a ship is not said to be moored unless she have two anchors, at the least, on the ground; but yet if she have but one anchor in the sea, and a hawser upon the shore (which is termed a proviso), seamen will say that the ship is moored, with her head to the shore.

ADMIRAL. I remember that towards the beginning of this day's discourse mention was made of such seams of a ship as were betwixt her planks: but what seam is that which seamen term the **Monk-seam**?

CAPTAIN. This is a kind of manner in the

sewing together of the selvages of sails, and it is done when the edges of the one are sewed over the edges of the other, and so are sewed on both sides, to make them the more strong and durable.

ADMIRAL. Your word sewing puts me in mind of your sea phrase when you say that a ship sews,¹ or is sewing ; what is the meaning of it ?

CAPTAIN. When a ship cometh to lie on ground, or to lie dry at low water, the saying is that the ship is sewed ; and if the water leave her but in one part only, then they will say that she seweth in that part. And if it be a place where the water doth not ebb so much as to lay her round about dry, the word then is that the ship cannot there be sewed.

ADMIRAL. What is that which you term the **Offing** ?

CAPTAIN. By this word offing is expressed as much as to say, out at sea ; as when a ship is at sea and hath the shore on the one side of her, and at the same time hath another ship on her other side, more out at sea (or, as the phrase is, to sea-board of her), it is then said that that ship which is to the seawards of her is in the offing. Likewise, if a ship be seen sailing to the seawards, they will say she doth stand for the offing ; so also if any ship be passing through the Channel betwixt us and France, and keep herself in the midst of the Channel and so comes not near some one of the shores, the saying is that she keeps herself in the offing, or keeps the offing.

ADMIRAL. How use you the word **Offwards** ?

CAPTAIN. It is a term in use when the ship, being aground by the shore side, does heel or lean towards the water side, and so from the shore ; for then they say that the ship heels to the

¹ ' Soves.'

offwards; and if the stern only lieth towards the sea, the word is that she lies to the offwards; and her head to the shore.

ADMIRAL. Which is that part or place in a ship which you call by the name of the **Pallet** ¹?

CAPTAIN. It is a room within the hold, severed and made close, in which by the laying of some pigs of lead or the like ponderous things, the ship may be sufficiently ballasted, and yet lose but little room in her hold, that so more of it may be employed in the stowing of goods.

ADMIRAL. Of what extent is the word pitching, or to pitch in sea phrase?

CAPTAIN. **Pitching** is not only the laying on of pitch upon any part of the ship, which is in sea phrase called paying; but when a mast is put and let down into the step, the saying is the mast is pitched, and when the mast, being in the step, seemeth to be placed over-near the stern, seamen say the mast is pitched too far aft; and on the contrary too far forwards on. And this is not thus meant by the head of the mast, when it hangeth too much aft, but of the placing of it in the step too much towards the stern. Also, if a ship fall too much with her head into the sea, or if she beat extraordinarily against the sea, so as she may endanger her topmasts, the saying is that she will pitch her masts by the board.

ADMIRAL. What mean you by the word **Predy**?

CAPTAIN. It signifieth with us at sea as much as prepared, or made ready, with you at the shore. So that when a ship is to be made ready for a fight at sea, the word of command is: Make predy the ship, and make predy the ordnance. And thus

¹ Mainwaring does not give this word, and this appears to be the earliest example of its use.

a predy ship is when all her decks are cleared, and her guns, and her small shot, and all particulars of that nature, are well fitted for a fight ; and when her hold is made clean, and all the goods and victuals handsomely bestowed there, and all things removed thence that may be troublesome, then we say the hold is predy.

ADMIRAL. How use you the word **Rounding** ?

CAPTAIN. This term is used about the main and foresails, when the wind largeth (that is, grows fairer) for the course the ship is to make. And the word belonging to this is ; to let rise the main-tacks, or fore-tacks, and to haul aft the fore-sheets to the cathead, and the main-sheet to the cubbridge-head ; and this is called rounding aft, or rounding in the sail ; and the sheets being thus ordered, they haul them down and keep them steady from flying up, with that rope called the passarado.

ADMIRAL. What mean you by the words **Rouse-in** ?

CAPTAIN. They are words applied particularly when a cable or hawser doth lie slack in the water and that they would have it made taut. And thus when a ship is riding but by one anchor, upon the turning of the tide the cable will be slack and so in peril of being foul about the anchor ; and therefore to keep the cable stiff and taut they haul in so much of it as lies slack. And the words of command in this service are : Rouse-in the cable, or rouse-in the hawser. And these words are not used in the hauling of any other ropes, but only in these, and in this case.

ADMIRAL. What doth your word **Rummage** imply ?

CAPTAIN. It is to remove any goods, or luggage, from one place or part to another, either

betwixt the decks or elsewhere ; but most commonly this term is appropriated to the removing or clearing of any goods or lading in the ship's hold, that so they may handsomely be stowed and ordered ; and when this is to be done the saying is : Rummage the hold.

ADMIRAL. You have divers times mentioned the word, heeling and explained it ; but what is that which you term **Seeling**, or to **Seel** ?

CAPTAIN. There is no difference between heeling and seeling, save that heeling is a constant and steady inclining of a ship on the one side, either when she is on ground, or is at an anchor, or under sail ; whereas seeling, or when a ship seels, it is a sudden agitation and violent tumbling of her, sometimes to one side and sometimes to another, accordingly as the billows of the sea heave her. That is to say, the wave of the sea doth pass from under her sides faster than herself can follow or drive away with it ; for then the ship, being under sail, is forced to fall that way, and this is called seeling. And when a ship thus tumbleth to the leeward, it is called the lee seel, wherein there is no danger though it should chance to fall out in a storm, because the sea will presently right her of itself. But when a ship thus rolls to the windwards, there may be peril of her falling quite over, by her coming off too short, and too suddenly ; for then by the breaking of the sea right into her, she may be either absolutely foundered, and so sink in the sea, or have some of her upper timbers quite carried away. And thus the seeling of a ship is nothing else but a sudden heeling, forced by the motion and violence of the sea and wind.

ADMIRAL. How is the word **Send** taken with seamen ?

CAPTAIN. When a ship, whether being under sail, or at an anchor, doth fall with her head or stern deep into the trough of the sea (that is, into the hollow betwixt two billows) the saying is that she sends much that way; as that she sends astern, that is, swims or plungeth deep into the sea behind, and so the other way, if she doth so before.

ADMIRAL. What is it to **set** the land, or the sun, or a ship, by the compass?

CAPTAIN. This is done by observing by the compass how the land bears upon any point of the compass; and it is generally used when a ship is going out to sea, from any shore or land, and it is done that so a due observation may be taken, how the land at that time beareth off from the ship, that so the better account may be kept, and the course the better shaped that the ship is to make. As for the setting of the sun by the compass, it is done when there is an observation taken upon what point of the compass the sun is at that instant, and hereby they find what hour of the day it is. When two ships also sail in view one of another and especially when a man-of-war chases another ship, the chased ship will, it may be, get the ship that chaseth her by the compass; that is, will observe upon what point of the compass she beareth; for if they both stand one way (as in a chase they generally do) and that the chased ship strive to make away (as perhaps she hath reason to do), by this course she may find whether the chaser do get upon her or not; that is, whether she outsails her or not. For if she brings her forth or forwards on, she then outsails her; if she bring her aft or more towards the stern, she is outsailed by her; if no alteration be found betwixt them in their sailings they both go equally. As for

example, if the wind being at north, both these ships stand away west, and the chased ship beareth north-west on the weather bow of the chaser; if in sailing she bring her to bear north-west, and herself by north, she hath then brought her a point aft; and if she have brought her a point north, she hath then brought her just with her midship beam; and so may resolve that she fetched upon her. And this work is termed bringing aft, because whereas before she bore upon her loof, she now bears upon her quarter.

ADMIRAL. What are your sea **Shackles**?

CAPTAIN. They are a kind of rings formed longwise, being larger at one end than at the other; and they are fixed in the middle of the ports [on the insides, and their use is to shut fast the ports] by having a billet, or the like, thrust through them, whereby the ports are barred down; and it is termed the bar of the port. And like unto these, but smaller, are certain others made fast unto the coamings of the hatches, and by them the hatches are lifted up, and these also are called shackles.

ADMIRAL. What are those that you term shanks, or **Shank-painters** rather, for of shanks you have spoken formerly.

CAPTAIN. The shank (as aforesaid) is the longest part of the anchor, but the shank-painter is a short chain fastened to the foremast shrouds with a bolt unto the ship's side, and at the other end thereof it hath a rope put into it, and upon this chain resteth the whole weight of the after-part of the anchor, when it is to be made fast to the ship's side; and by this rope it is hauled up and firmed about a timber's head. True it is that this is seldom done abroad at sea, but only in a road or harbour.

ADMIRAL. You use sometimes to say that a ship goeth **sheering** : what mean you by it ?

CAPTAIN. When the helmsman steers unsteadily the ship is said to go sheering. Also when a tide gate (and that is when the tide runs violently strong) the ship being at an anchor is forced to wave in and out, and lieth not directly forwards in her riding ; this also is termed sheering, and in some places, at some times, this is found so perilous that more than one man at once is put to the helm to govern it and to steer her upon the tide ; lest otherwise she should sheer home her anchor ; that is, drag it home ; or, if she ride near the shore, sheer aground.

ADMIRAL. What be your **Sheepshanks** ?

CAPTAIN. This is a kind of knot, cast upon a runner when it is too long (which runner is a running rope), for otherwise the goods or victuals cannot be hoisted in, over the ship's sides ; and by this knot, called the sheepshanks, this runner is upon all occasions shortened at pleasure, and as easefully lengthened.

ADMIRAL. What are your **Sheers** on ship board ?

CAPTAIN. When two masts or yards, or indeed any two poles, are set up on end, a pretty distance at the bottom, but withal seized together one to another crosswise aloft somewhat near the top, this is named a pair of sheers. And unto this seizing is fastened a double block with a strap. And these sheers are placed at their feet and bottom upon the chainwale of the shrouds ; and they are lashed fast to the ship's sides to keep them steady aloft. And the use of these is, either to set in a mast, or to take it out ; or else they are used to hoise in and out goods into boats which have no masts.

ADMIRAL. But what be those which you call **Sheer hooks** ?

CAPTAIN. They are great hooks of iron about the bigness, and in the form, of a sickle, and they are let into the main-yardarms and foreyards of a ship. And their use is, that with these sheer hooks, being thus ordered, in boarding of an enemy's ship, her shrouds and sails may be torn and spoiled ; but by experience it hath been found dangerous, in respect that hereby the breaking of a yard may be occasioned, if these hooks should catch upon the other ship's yards.

ADMIRAL. What mean you by the word **Shoaling** ?

CAPTAIN. Shoaling, or growing shallow, is all one. And we call it good shoaling when the water grows shallow by degrees, and not either oversuddenly or uncertainly, as sometimes deep water, and sometimes shoal water ; the one being a very dangerous falling in with the shore, the other safe.

ADMIRAL. You mentioned before what is the keckle of a cable ; but what is that termed the **slatch** of a cable ?

CAPTAIN. When any piece of the middle of a cable or rope doth hang slack without the ship, as the cable when it hangs slack in the water, or the lee tack, the lee sheets, or the braces, or any other ropes, the word then is : Haul up the slatch of the rope or cable. Likewise after a set (that is, a continuance or time) of foul weather, if there chance an interim or small intermission of fair weather, it is termed a slatch of fair weather, especially if foul weather again ensue suddenly upon it.

ADMIRAL. You have formerly spoken of sundry sorts of blocks, but not at all of the **Snatch block**.

CAPTAIN. This is a great block with a shiver in it, and it hath a notch cut through one of the cheeks of it by which is reeved a rope ; and this notch is used for expedition sake, for by it may be reeved (that is, put) the middle part of a rope into the block, without passing it by the end only, which to do would take up more time. And this block is for the most part made fast about the mainmast by a strap, close by the upper deck, and is chiefly used for the letting fall of the winding tackle ; which is reeved into that block and so brought to the capstan.

ADMIRAL. What mean you when you say : give a spell, or give a fresh spell ?

CAPTAIN. To **do a spell** is to do any work or labour for a short time, and then to leave it successively to some other fresh men to take their turns at it ; and so it is called a **fresh spell** when fresh men come to work, as when one company pumps one hundred strokes in a glass (that is, in the space of an hour) it is termed their spell. Likewise in rowing in the boat, when one says to another : **Give a spell**, it is as much as to say, row in my room for a while. And it is to be noted that this word spell is only used at sea, and as a sea phrase, in pumping and rowing.

ADMIRAL. But what mean you when you say **Spill** ¹ such or such a sail ?

CAPTAIN. When a sail hath caught much wind into it, and that upon any occasion, either for the taking of it in, or for fear of wronging (that is, over-forcing) the mast by the violence of this wind, this wind is to be let pass, so that it may have no over-great force ; the word of command then is : **Spill the sail** ; and this is done by letting go the

¹ ' Spell ' in the MSS.

sheets and bowlines, and bracing the weather brace in the wind, for by this means the sail will lie all loose in the wind. But this word of command is most properly used to the mizen sail only, and (as before noted) it is by taking in the mizen, or peaking¹ it up, for then we say: Spill the mizen.

ADMIRAL. How understand you the word spooning when you use it at sea?

CAPTAIN. **Spooning** is to put a ship right before the wind when she is at sea and all her sails taken in, in foul weather, for then the ship is said to spoon afore the wind. And this is practised in extraordinary storms, and especially when a ship is so weak with age or over-labouring that they dare not lay under the sea (that is, with her broadside to the billow). For though a ship when she spoons afore the wind, may haply roll very much, yet she strains not so much as otherwise she must needs do. True it is that if she be a dangerous rolling ship she must of force be laid under the sea, or else it may be feared that she will roll her masts by the board, or be in peril by the over raking (that is, over washing) of some great sea (that is, billow) to founder, and be sunk downright, by fetching of some desperate seel; in which extremity they are forced sometimes to set the foresail to make her go the steadier; and this is called the spooning of (or rather with) the foresail; but nevertheless this is not to be done but when there is a surety of sea room enough.

ADMIRAL. What is that you term **steeve** or steevying?

CAPTAIN. Our saying is that the boltsprit or beakhead steeves, or stands steevying, when it is placed over-upright and not sufficiently forwards

¹ 'Speeking.'

on ; likewise when cotton-wools, or the like stuff, are put aboard a ship and forced into a narrow room by a screw, that they may not take up over-much room in the hold, it is called the *steeking* of cottons ; and this is done sometimes with so much forcing that the very deck will be raised thereby, to seven or eight inches.

ADMIRAL. What mean you by the word **Stoaked** ?

CAPTAIN. When such water as falls into the very bottom of the ship cannot come to the well, then the saying is that the ship is a-stoak, or is stoaked. And this comes to pass by reason that the limber holes are choked with some bad ballast or the like ; and then we use to say that the limbers are **stoaked**. As also when any cloying stuff is gotten in or about the bottom of the pump, so that it cannot suck in the water, the phrase is that the pump is stoaked. And in this regard, all corn, salt, and the like materials, which will swell with taking of wet, is accounted and found dangerous lading, because these things are apt to **stoak** the pump and well.

ADMIRAL. How use you the word **Stretch** ?

CAPTAIN. This word is not used at sea as it is vulgarly upon the shore, to strain or lengthen out anything ; for when the word of command is : Stretch forwards the sheets or halliards ; it is as much as to say, give on, or deliver up that part which is to be haled upon, into such other men's hands as stand ready to hoise or hale it in or up.

ADMIRAL. What intend you when in your sea language you say : Strike this or that sail ?

CAPTAIN. To **strike** any sail is to hale or pull down any sail. And when any ship strikes to another ship in this manner by lowering any of her topsails, it is a sign of submission or respect at the

least, unless it be in case of staying and attendance one for another. If therefore a ship of war come up at sea with a merchant ship, or any other vessel, upon any terms of enmity or war, and that in this manner the merchantman strike unto the man-of-war, it is received as a kind of yielding of herself. Likewise when a ship comes into shoal water and so, at length, beats upon the ground, she is then said to strike. Also when any topmast is to be taken down the word is : Strike it down. Also when any goods or aught else is to be let down into the hold of the ship with the tackles or any other rope, it is termed a striking down into the hold.

ADMIRAL. What is that you term a surge ?

CAPTAIN. A **Surge** in a general acception is a wave or billow of the sea ; but those are especially termed surges which beat and break upon the shores. And this word surge is also used when, heaving at the capstan, the cable chances to slip back again, for then we use to say that the cable surges.

ADMIRAL. What is that you name a **Tampkin** ?

CAPTAIN. This term tampkin and the word cap, I must acknowledge, were omitted when formerly we made mention of the appurtenances belonging to the great guns, appertaining to a ship of war (although some pieces of a ship called caps also were not forgotten). And as to the tampkin, or rather tampin, it is a piece of wood, made round and fitted to the mouth or bore of the great piece that it is to serve for ; the which being put into it preserves the concavity of the gun from being damnified by weather or rain or sea-water dashing into it ; so the **Cap** is a piece of lead apted to lie over the touch-hole of the piece for the same

purpose, lest anything should fall into it, and cloy it, as the phrase is.

ADMIRAL. What mean you when you say a ship is very **tant-masted**, or is **tant** ?

CAPTAIN. Whensoever a mast is extraordinarily tall for the proportion and the bigness of the ship that carrieth it, the saying is that she is tant-masted, or the mast is tant. True it is, that the Low Country ships are generally thus tant-masted ; for tant masts and narrow sails and yards are best to sail by a wind, because the sails do stand so much the sharper ; but yet withal they wring a ship's sides very much, and far more than a short mast and broad yard can do, and this is the reason that our English use the one and (for the most part) refuse the other. But of this more shall be said at large, in the ensuing dialogue.

ADMIRAL. When is a ship said to be **tight** ?

CAPTAIN. When a ship is staunch, that is takes in but little water into her hold, she is said to be tight. And this tightness is best known by the very smell of the water that is pumped out of her ; for when it stinketh much, it is a sign that the water hath lain long in the hold of the ship ; and on the contrary, when it is clear and sweet, it is a token that it comes freshly in from the sea. This stinking water therefore is always a welcome perfume to an old seaman ; and he that stops his nose at it is laughed at, and held but a fresh-water man at the best.

ADMIRAL. What be your **Top-armours** ?

CAPTAIN. As the waist-cloths (fore-mentioned) which are called the fights, serve to the cageworks (that is, the upper works or rails of a ship), so are these top-armours to the tops (the which tops are those round frames of timber at the heads of the

masts). And these serve not only for show and ornament, but also to shadow (in the nature of blinds) all such men as in a fight are stationed there, and are appointed from thence to throw either stones or fireworks, in a boarding fight, upon the enemy.

ADMIRAL. What are the **Fireworks** which are most useful in your fights at sea ?

CAPTAIN. All such fireworks are well made use of in our sea fights as may surest and readiest be thrown upon the hulls, sails, tops and masts of ships ; and such are **Fire pots** or glasses filled with powder, having lighted matches tied to their necks, **Fire balls**, **Trunks**, **Brass balls**, **Arrows**, and the like ; amongst the which I especially prefer those small hand **Grenades**, which are in common use at land in trenches and approaches upon besieged towns. For these or any of these are very proper to fire the masts, sails and hulls of an enemy's ship.

ADMIRAL. What peculiar sense hath the word **Trice** with seamen ?

CAPTAIN. This is with us properly used when anything is to be hauled in by a dead rope ; and this is such a rope as runs not in any block, nor is hauled up by any other art or device than by the hand and a main force. As when an empty cask is made fast to a rope, that is no tackle, the word of direction is : Trice up the cask. And the like is said when any chest of goods (not over-ponderous), being fastened to a rope, is thus hauled into the ship, by the strength of hands.

ADMIRAL. What signifieth the word **Waft** ?

CAPTAIN. To waft is to convoy or guard any ship or fleet through the sea, and to succour and preserve them from pirates. As those ships called men-of-war use to do with merchant ships, the

which ships of war are termed **Wafters**. But this word waft, when it is a noun, intimateth such signs or shows as from aboard ships are made to boats or men, when they would have them to come aboard them hastily from the shore or elsewhere ; and these wafts are commonly some sea-coats, or gowns, or the like, heaved (that is waved) abroad or hung out upon the shrouds of the ship. But whensoever any of these shows are hung out by a ship, being at sea, it is received as a signal that she is in some imminent peril.

ADMIRAL. Which is that termed the **Wake** of a ship ?

CAPTAIN. It is only that smooth water which a ship makes when she is under sail, and leaves behind her at her stern, and this is likewise called the ship's way, because the ship went through it. And by this smooth water a good guess may be made by a good judgment, what speed a ship makes in her sailings ; as also whether she makes that due way that she looks ; that is, whether she goeth right and full upon that point that her head lieth. For if this wake be directly right astern she then makes her way good, as she looks ; and on the contrary if the wake be found a point or two to the leewards of her course, it is sure enough that she falleth also to the leewards of it in her sailing. And by this observation also it may be known whether a ship be nimble or yare of her steerage or no ; for if in a ship's staying, she does it so readily that she falleth not to the leewards, and that when she is tacked about, her wake is discerned to the leewards of her, it is a sure sign that such a ship feels her helm well, and is very nimble of steerage. Likewise when a ship is in chase of another ship and hath gotten as far up into the wind as the chased ship, and withal saileth directly

after her, the saying then is that she hath gotten into her wake.

ADMIRAL. What be the **Waist-boards** ?

CAPTAIN. The waist of a ship being that part of her which lieth and is raised between the main-mast and the forecastle, such boards as are at any time upon any occasion set upon this waist, betwixt the gunwale and the waist-trees, are termed waist-boards. But these waist-boards are seldom used in ships ; but often in boats ; and they serve to keep the sea from breaking over into them.

ADMIRAL. You have already spoken of the word stretch, but what are those you call **Stretchers** ?

CAPTAIN. These also are only used in boats, and are those wooden staves or cudgels which the rowers set their feet against when they tug hard at the oar, that so they may be able to fetch the stronger stroke.

ADMIRAL. When you spake even now of the wake of a ship you said that it was also called her way ; but is not the **Way** of a ship taken commonly in a larger sense.

CAPTAIN. It is so ; for the rake or run of a ship is also called her way, either forwards-on or aftward-on. And so when a ship sails well the saying is that the ship hath a good fresh way. Likewise when the dead reckonings are to be cast up, there is an allowance of a leeward way (as it is called) from that way which a ship seemeth to go by the compass.

ADMIRAL. What signifieth the word **Aft** or **Abaft** ?

CAPTAIN. In sea language it expresseth as much as a removing of anything from the stem towards the stern of a ship ; as when men say : Carry it abaft or aft, it is the same as to bid a

removal of it towards the hinder part of the ship from the fore part ; and so when they say : Go or come aft, it is all one as to bid them to go from the stem or fore-ship, to the stern or back-ship.

ADMIRAL. What signify these words (common among you) : Cataract ; spout ; the fall or overfalls of a river ; and what are these ?

CAPTAIN. These names are as common with landmen as seamen ; for a Cataract is the violent falling down of waters in a river perpendicularly, as in the Cataracts of Nilus, from the hills to the valleys. And most of the long mighty rivers find the like falls, by reason of the descent of the midland parts of the earth to the maritimate. As for Spouts, they are those sudden and mighty falls of water, which pillar-wise fall from a cloud at the breaking of it ; and these are found in most hot countries and especially in the West Indies ; and are sometimes in such abundance that if they unluckily light in a ship (as they have done very near where I have been), it would endanger her foundering right down in the sea ; and these spouts are by some also named cataracts. As touching the Falls and Overfalls of rivers, they differ nothing from cataracts save only in the quantity of the waters, in the height of their descent, and in that they fall not so perpendicularly.

ADMIRAL. What implies the saying that the boat **spins** by her moorings ?

CAPTAIN. It is a sea phrase seldom met withal. True it is that I have found it in some printed Sea-Relations, and for my part I conceive that it only implieth that the boat, being towed at the ship's stern, and by some accident filled with water and floating in that manner, is turned round by the force of the way of the ship being under sail ; in

regard of which motion perhaps the word should rather be spelled *spinne*, than *spine*.

ADMIRAL. When is a shot made out of a great piece said to be **drowned**?

CAPTAIN. When the gunners make their shots to fall into the sea, short of the mark they aim at, they use to tell them that they drown their shot.

ADMIRAL. What is that termed the **Rut** of the shore?

CAPTAIN. It is that noise and bellowing which is heard upon beaches and bays, by the breaking and rolling of the surges of the sea upon those parts.

ADMIRAL. What is that termed the **Portless**,¹ called the Portless of the forecastle?

CAPTAIN. It is that wale or bend that lieth under the portholes of those great guns, which are in the forecastle of the ship.

ADMIRAL. What mean you when you say: A sea **raked** the ship fore and aft?

CAPTAIN. The meaning is that a billow or wave of the sea in a grown storm; that is, when the sea goeth high, breaking upon the beakhead or forecastle of a ship, did wash and wet the ship all over from stem to stern.

ADMIRAL. When is the wind said to be **dulled**?

CAPTAIN. When after a fresh gale of wind, or a wind that hath blown somewhat lofty, it begins to slacken and not to blow so stiff as it did, then the saying is that the wind is dulled.

ADMIRAL. What is that you term the **Trending** of the land?

CAPTAIN. In sea language it implieth the posture and lying of it; as when a shore lieth north and south, or east and west, seamen say that it trends so.

¹ Usually spelt 'portlast.'

ADMIRAL. What mean you by a **Shot-board** ?

CAPTAIN. It is a board prepared and lying ready to be suddenly nailed on, upon a leak made by some shot.

ADMIRAL. What is that you call a **Staddle** ?

CAPTAIN. It is a piece of wood serving in the nature of a small timber.

ADMIRAL. Which is the **Stern-post** of a ship ?

CAPTAIN. It is the uppermost (*sic*) part of her stern, whereon the rudder hangeth.

ADMIRAL. When is the wind said to **snuffle** ?

CAPTAIN. When it begins to blow loud.

ADMIRAL. What is meant when it is said that the tide runs so many **knots** in so many glasses ?

CAPTAIN. By knots are meant those marks which (as aforesaid) are set out upon the log-line ; so that the sense of the phrase here must be, that when the log-line with the log is heaved overboard over the stern of the ship, when she is at an anchor, they find and discover the force of the tide there by the running out of so many knots, more or less, in such a space of time, measured by the minute glass, in its running.

ADMIRAL. Which are those termed **Messengers** ?

CAPTAIN. These are small jeer ropes laid upon a cable, and were formerly mentioned.

ADMIRAL. What mean you by a **hard Roadstead** ?

CAPTAIN. It is said that a ship endures a hard roadstead when in foul weather she is put to ride it out in a dangerous and bad road ; and it is accounted a bad road when either it lies over-open to the sea, or when the ground is bad, or the cables are in likelihood to be torn by rocks or rocky ground.

ADMIRAL. What understand you by **Whirlings**, as when you say that you find whirlings of water ?

CAPTAIN. These are only such turnings about of the water as are vulgarly called whirlpits ; and may be occasioned by the meeting of tides, or the sucking of the water into some subterranean cavities, or the like.

And now we have gotten through our world of words. And herein I shall willingly confess that (in relation to my memory) I have been somewhat beholden to the collections of some others. For otherwise we should have been put unto it, to have spent this particular discourse somewhere on ship-board, where the view of the parts and pieces would have served me as a nomenclator. And had not this our sea language, with our words of art, received these expressions and interpretations, we must needs, with the most of landmen, have been understood little better than if we had talked nonsense or mere fustian (as the saying is), and especially in our two ensuing discourses. And therefore the contents of this day's discourse are thus far alphabetically set down, in the Table in the beginning of the Book ; that when any one, unacquainted with our terms, shall meet with some too hard for him, he may, by the Table, be directed where to find the word or phrases explicated to him in the treatise.

DIALOGUE THE FIFTH

About the choice of the best Ships of War ; and of Ceremonial Compliments used at sea.

ADMIRAL. The work of this day is intended for a conference about Ships of War ; and especially concerning such as may be most serviceable for the present times and occasions.

CAPTAIN. You say well, my Lord, in saying serviceable for the times present ; for it is certain that even every age taught by experience, and it may be beaten into it by being beaten, after a tedious burthen travaileth forth some new birth, to lighten and ease itself. And our neighbours the Dunkirkers have made this good ; for finding it to their cost, that in Queen Elizabeth's time they fell short of matching us by right down blows at sea, to remedy this and save themselves they provided themselves with vessels, though not great, nor of any great force for the most part of them, yet of extraordinary sail ; whereby it is come to pass, not only with them, but with the Turkish pirates also, that (as the sea word is) they can leave and take upon us at pleasure ; that is they can run away from us when they find themselves too weak, and fetch us up, when they know themselves over-strong.

ADMIRAL. And they need no other advantage. But why should not our ships sail as well as either the Dunkirkers or the Turkish pirates, or any else ?

CAPTAIN. Of this, there may be many sundry reasons. I mean that there may be many causes of the good and bad sailing of ships: as the bulk and size of them ; for it is unreasonable to expect that a vessel of extraordinary burthen as of five, six or seven hundred tons, especially being heavily laden either with goods, as our merchantmen, or with ordnance, as our men-of-war, should sail so nimbly or make so good way, in ordinary weather, as another ship that is lesser or lighter. Secondly the frame and mould of a ship's building is very considerable in the point of her good and bad sailing. For the long rake of a ship forwards on (as most of the Dunkirkers, French and Turkishmen are) gives a ship great way in her sailing ; and withal makes her to keep a good wind. But withal care must be taken (as was intimated formerly) that she have a good full bow, lest otherwise she pitch overmuch into a head sea ; and the larger her rake is the fuller must be her bow, to preserve her from being overcharged with her rake. Thirdly, the same also may be said of the run of a ship ; for this being long and coming off handsomely by degrees, that so the water may come the more swiftly to the rudder and hereby help and further her steerage, and her feeling of the helm is a point of main consideration towards a ship's good sailing. Fourthly, the narrowness of a ship's rudder doth likewise much advance to this purpose ; for the narrower it is, provided that the ship will feel it in her steerage, the better it maketh for her sailing ; because a broad rudder holdeth much water, whensoever the helm is occasionally to be put on the one side, and so must needs hinder the ship's way. Fifthly, the fitting and setting of the masts of a ship, is likewise very material in this case ;

for if any vessel be over-masted, either by reason of length or bigness, it must needs over-charge her, and cause her to stoop or lie down too much to a wind. And the more upright a ship sails, the better she sails. On the contrary, if a ship be under-masted, she thereby loseth the advantage of the spreading of a large sail, and this must necessarily hinder her sailing. Sixthly, much care is to be taken in the point of the staying of a ship's masts; for generally the more aft (Flemish-like) the masts of a ship do hang, the better the ship doth keep the wind; and the better she doth this, the better she sails. And some ships require the stay to be taut, others slack; which must be caught, and so held, by practice and observation. Seventhly, regard is also to be had, in the point of a ship's good sailing, that she be not any way over-rigged; for this (as hath been formerly noted) is a great wronging to a ship's sailing, by reason that a small weight aloft hinders more than a far greater below; for it must needs make her stoop, and in any stiff gale of wind, cause her to lie overmuch upon her quick side in the water, and especially when she sails by a wind; and a crank-sided ship can never sail well.

And thus do all these particulars, or any one of them, as they are more or less found, much conduce to the good or bad sailing of all kinds of ships whatsoever. Though perhaps the particular cause why our ships in general sail not so well as the Dunkirkers, nor the Turkish pirates, nor indeed as the French, nor Hollander, may be in that, for the most part we build them so very strong, and consequently heavy; so full of timber and timbers; we building our ships for seventy years, they theirs for seven; we for stowage, they for stirring.

ADMIRAL. And yet I have heard it often confidently affirmed that our English ships in general, and especially those of his Majesty's, are the primest vessels for men-of-war in the world.

CAPTAIN. I confess that for the composition of a Royal fleet destined to meet with another the like, and both intending to find out one the other with a resolution to fight it out, and to set their rest upon a main battle upon the main sea, there are no better nor braver ships swimming on the seas than are our English ships in general, and chiefly those of the King's royal ships, which may be held the very castles of the sea ; but yet give me leave to say thus much : that even such a royal fleet, thus composed and thus disposed, unless they have amongst them some of the lighter ships and nimble and prime sailers, forementioned, it must necessarily prove itself to be only as a giant, strong and (if you will) invincible at a close and grappling, but for all that so weak and impotent in his legs that any active and nimble dwarf, keeping out of reach, may affront and scorn him ; nay, hurt and endamage him, without receiving the least harm or revenge from him again.

And over and above all the forementioned benefits, which a great and strong fleet may and must needs receive by these yare and nimble sailers mixed amongst them, these ensuing particulars are worthily held in especial account : that they are ready at all hands to wait upon it, upon all occasions ; that in calms, or small store of wind, if they be fitted with oars (as they may easefully and conveniently be), they may be advantageously employed in all chases ; and that upon all occasions they may anchor near the

shore, where the great ships cannot ; and may be fitly used to fetch in all strange ships whatsoever, to speak with the Admiral.

ADMIRAL. You have sufficiently spoken to this point. Let me also more perfectly understand what those duties are, which appertain to the wafters in a fleet of merchants.

CAPTAIN. Of these we spake somewhat formerly ; they being men or ships of war, appointed in a fleet of merchantmen, and hired for to guard them, if they should chance to meet with any enemy or pirates ; and to bring them safely off, to the ports they are bound for. To which end the best order is that their Admiral sail headmost, and the Vice-Admiral to bring up the rear ; and the rest of the wafters to keep themselves to the windwards of all the fleet. And whensoever this fleet tours¹ into any road, then is the Admiral to come first to an anchor, and after him the Vice-Admiral ; but none of the rest of the wafters to come to an anchor before all the fleet of merchants be in security. For by this order, an enemy cannot any way break in upon the merchant ships, but shall meet with opposition from some of the men-of-war, and wafters. It is also (here by the way) to be noted, that whensoever any fleet whatsoever, is to ride at an anchor in a road, the Admiral of that fleet is to take his berth and mooring the farthest out into the offing, and no ship to be suffered to come to an anchor without him to seaward, lest hereby, such strange ships as come into that road, whilst this fleet is thus anchored, be impeded in their course, when they are (as they ought to do) to pass under the Admiral's

¹ ' Towres ' = turns ; a very early example of the use of this word as a verb.

stern ; or any other way to give an account of themselves.

ADMIRAL. This stands with good reason ; as doth that likewise touching that particular which you even now mentioned, concerning the necessity of having some smaller vessels of extraordinary sail in all great fleets of war. And by this also, well considered, it seems to me that it may be concluded, which some able seamen have affirmed ; that is to say, that one hundred small ships, being good sailers may make a good party against one hundred great ships that are heavy and dull of sail, or at least that these good sailers may choose whether they will take any harm by those great ships or not.

CAPTAIN. I am so far gone in this opinion that I dare affirm to maintain it with good reason, that not only one hundred of such well-sailing ships, but half the number or less being well manned, well munitioned, and sufficiently commanded, may not only make a saving business of it, but have the better in an open sea of any hundred ships whatsoever that are heavy and dull of sail ; look they never so big, or be they never so bigly gunned.

ADMIRAL. Howsoever true this may be, yet I believe it will require an enlarged discourse before it be believed ; and therefore you are to make some demonstration of it.

CAPTAIN. Let it then be considered that these hundred great ships, when they come to the battle, must be put either into close or open order ; if into close, then shall these small ships, by being nimble sailers, be able to take or leave in giving on upon them, where and how they list, by charging them upon any angle, and force those ships they charge to fall back upon their own

fellows ; in which falling back, as many of them as entangle and fall foul one upon another (as some of them must needs do) shall hereby become utterly unserviceable, and withal endanger the disordering of all the rest. And as for the use and employment of their great guns, the good sailers shall even in this particular be able to over-press the other ; for being nimble and yare of steerage, and having sea-room, by a sudden clapping into the wind and bringing of themselves on the backstays after they have bestowed one of their broadsides, they may speedily give the other ; whereas the hundred bad sailers, being closed and shuffled up together, and being heavy and unwieldy withal, they can never use save one, the same beaten side.

ADMIRAL. This may well prove so, when these hundred unwieldy ships are thus forced to fight in close order ; but what if they shall find opportunity to bring themselves into open order ; how will it go with your good sailers, being but small ships, in this case ?

CAPTAIN. Even in this case, though it be with the most advantage possible for great ships, yet is it very probable that the nimble sailers (who may charge, or not charge, nor be charged, but when they list) shall find opportunity to oppress and prevail against any such of the enemy as in the fight shall be severed from the main body of their fleet. And besides, if the fight chance to be upon a lee-shore, and that any of the great ships that are next the wind be forced by any accident to retreat upon any one of their own squadrons, it is then all to nothing, but that the good sailers and nimble ships (who may be sure enough to keep themselves to the windwards) will force the other whole fleet to fall foul one

upon another ; and so either suffer shipwreck upon the lee-shore or render themselves.

ADMIRAL. Truly, for mine own part, I find not how this may be gainsaid, and I persuade myself that there is no seamen who understands both the language and the reason, will find any reason to the contrary, or ground for an opposition ; unless he shall shew himself more possessed with the spirit of contradiction than that of reason.

CAPTAIN. And if there be any such, to cure them, and withal to caveat against a presuming upon the number of a fleet and the bulkiness of their ships, I shall add one precedent more taken out of Thucydides (Lib. 2), where twenty Athenian small gallies vanquished forty-seven great ones of the Peloponnesians, in this manner. The Peloponnesians with their great fleet (rather fitted for land-service than sea), believing that the Athenians, being so few in number and so small of burthen, durst not look upon them, went out to sea thus highly conceited and high-flown, but had not been long abroad before they discovered the contemned Athenian fleet making towards them, and quickly found that, contrary to their expectation, they should be fought withal, whereupon the ignorance of their commanders brought their fleet into this ill order : they cast themselves into a circle and berthed themselves so close that the Athenians might not pass in betwixt them with any one galley, laying the stems of their own galleys outermost ; and in the centre of their circle were received all such vessels of theirs as were worst fitted for a fight. Only five of their fleetest galleys were ordered so to be in the midst of them, as that at certain times they might issue out on whatsoever

piece of the Athenian fleet they should think fit to charge. The Athenians finding their enemies' galleys thus shuffled and huddled so close together, brought up their own fleet one after another in file and rowed round about them as if they had meant to charge; but the Athenian General had instructed his Commanders that they should not make any attempt until he gave them a signal. The which he did upon an ex[pec]tation of some winds which in that place blew trade every morning. This falling out accordingly, and blowing fresh, the Peloponnesian galleys, by being over-closely berthed, were not only disordered by the blowing of the wind and motion of the sea, but withal troubled with their own lesser vessels that were enclosed within their circle, so that when any galley fell foul of another, and the mariners laboured to clear themselves with poles, oars, or the like, there suddenly arose such a tumult and noise that no commands or directions could be heard or taken; and withal became so disabled in the use of their oars, that there was nothing to be seen but confusion. The which their vigilant enemy perceiving, instantly gave on upon them in several parts and soon brought them to that pass that, no one galley of them applying itself to any resistance, they were all of them utterly broken and fled; and so left an absolute victory to the Athenians. And for a fair warning it may serve to all over-presumers in respect of number; and to fore-warn withal that, in the composition of a fleet, it be neither over-wieldy composed, nor disorderly berthed, nor unprovided with light vessels nor good sailers.

ADMIRAL. Let us therefore hear what kind of ships, and of what size you would propound

for the best of ships of war, according to present services at sea.

CAPTAIN. As touching their burthen, I should make choice of those of the middle size ; for these when well moulded and contrived, must needs be best for sailing, and will also bear a very good sail, and are likewise nimble and yare of steerage, capable also of the carriage of sufficient great guns, and of convenient numbers of men ; and so may every way be fitted to any service, either defensive or offensive.

For though great Princes may (for fame sake) affect the having of some extraordinary great ships, to keep state withal, yet surely I find not how any extraordinary use may be made of them in point of war, or battle. It is true that if the lesser ships have a mind to be beaten they may come near unto them, and be torn in pieces with their great guns. And it is as true that (being the better sailers) they may choose whether they will or no ; but may watch an opportunity to do them a greater mischief, upon a change of weather, in meeting of any of them single ; the smaller vessels having this advantage of them besides, that they can run nearer the shore and harbour themselves with less danger ; whereas over-great ships swim very deep in the water, and in that regard are vessels of charge, and very unmanageable ; especially in our English channels, which also alter and change almost every year.

As for the building of ships of war, in point of strength, great wariness is to be practised in the letting of them out to be built by the great ;¹ lest the shipwrights take more care for their gain sake to build them cheap than to make them serviceable ; and so make them subject to con-

¹ By contract.

tinual charge in repairing of them, and by their weakness, in peril of foundering in the sea upon every extraordinary storm. They are also to be built good of sail, and the courses to make them so were set down formerly, in the beginning of this day's discourse. As likewise, to be stout sided that they may bear a good sail, and this is obtained by giving of them a long bearing floor. To be good sea-ships also, that is to say, to hull and try well, and this is done by giving of them a due draught of water ; they are likewise to be contrived so as that they will stay well, and therefore not to be built over-long, especially if they be somewhat floaty, and want a due sharpening forwards on. True it is that long ships are fitter for our seas than the ocean, but yet one hundred foot of length and thirty-five feet in breadth is a good proportion for a great ship in any seas whatsoever. It is also to be held for an especial observation (which was also touched formerly) that all ships, sharp before, wanting a long floor, will fall roughly into the sea and extremely wash their noses (as the phrase is). And that all narrow-quartered ships on the other side, will dip their tails over deep ; which are faults carefully to be avoided in the building of all ships of war. The over-high charging of ships also with cage-works is a main cause of most of their ill qualities, making them to be extreme leeward ships, to sink deep into the water, and to be apt to be over-set. And though the common seaman liketh it well enough, as coveting store of cabins, yet are these cabins no better than nasty holes, which breed sickness, and in a fight are very dangerous, as causing much spoil with their splinters ; so that in all long voyages, especially to the southwards, the lodging of the common

men in hammocks is far more wholesome and preferable.

As for the contriving of ships of war, within board, they are to be made flush fore and aft, that is, to be on an even floor, without any steps or falls up and down ; whereby the ready passage of men to and again is much hindered and the ship made less capacious. They are also to have double forecastles and their bulk- and cubbridge-heads to be full musket-proof ; that so by flanking one with another they may scour their decks and midship with the great guns laden with case-shot, being well lodged in covert under the half-decks and forecastles ; having likewise loopholes for their muskets, so secured that their musketeers may be safely shadowed, and yet command every inch of the ship abroad. True it is that in these ships, thus contrived, a main care is to be had that they be lofty and high betwixt the decks, where the great guns lie ; that so those guns may be the more easefully traversed and managed, and that the gunners may make the surer shots, and be the less annoyed with the smoke of the powder. Great regard is also to be had that, in the laying a ship's decks, the lower tier of guns be not lodged too low and over-near the water (an error committed in some of the King's ships of the old building), but so as that they may be carried out in all weathers fit to fight in, and that without the peril of taking in of water at their ports. It is heedfully likewise to be observed that these ships be not built over-lofty ; for being thus (unless the staying of their masts be very much afterwards on) it is not possible that they should sail well by a wind ; so that proving leeward sailers, they will easily be eaten out of the wind in any chase of length. It is requirable

also that the bows and chases of these ships be so contrived that out of them as many guns as possibly may be, may shoot right forwards, and bowing (as the sea word is). To which purpose the ports in general are so to be cut out that the guns may not lie directly one over another ; but so as that upon the least yaw of the helm some one piece or other may be brought to bear. To which end likewise, the ports are to be made so large that the guns may be every way traversed abroad.

ADMIRAL. Are there not some rateable and limited proportions for the sizes of all ports.

CAPTAIN. The ordinary proportions are about thirty inches in breadth for a demi-culverin ; and this may answerably be allowed either higher or lower, for all other sizes of great guns, fit to be put in any ship whatsoever ; the which guns also are to be bigger or lesser as the ship is more or less in burthen. Provided always, that no ship be over-charged with her ordnance, either in respect of weight or number ; for hereby she must needs be forced to labour extremely in every grown sea ; and besides the guns are over-many in number, they necessarily require an extraordinary number of men to manage and traverse them. And if any of them should break loose by the seeling or rolling of the ship in foul weather, great peril might ensue, by having her sides broken out by the weight and tumbling of the gun to and again, for want of hands to make it fast.

ADMIRAL. What are the sizes of great guns which you hold fittest for ships of war ?

CAPTAIN. These sizes (as aforesaid) being to be carefully proportioned to the burthen of the ship that is to carry them, and the best sizes for ships of war being (in mine opinion) from four hundred

to eight hundred tons, I may hereby safely and rationally conclude that the main of their ordnance is to be from a saker at the lowest to a demi-cannon at the highest; and accordingly as the ships are, which are to bear them so to be shipped. For though some few minions and mortar pieces may in some vessels be usefully bestowed in some particular parts ¹ to do execution at a boarding, yet for the generality of service, and so of ordnance, I cannot much approve of any beyond the weight of a demi-cannon, in respect of unmanageableness, nor lower than that of a saker, in regard of their unserviceableness.

ADMIRAL. What think you of those kind of great guns called curtals? ²

CAPTAIN. I doubt not to say that, in respect of their unruly reverse, they are both troublesome and dangerous; and in regard of their shortness, of little or no execution beyond the common mortar piece.

ADMIRAL. What say you of those light kind of guns newly invented, called drakes?

CAPTAIN. For these also, howsoever in regard of lightness and smallness, they may seem desirable, yet in respect of their violent reverse, occasioned by their over-lightness; so that they are not to be used on ship-board, unless the trucks of their carriages be so framed, as by their straitness ³ upon the axle-trees, their reverse may be regulated; and that, being thus straitened, they become as hard to be traversed as most of the heavier pieces; and besides that by reason of the thinness of their metal they are so soon overheated, as not to be made use of in any long

¹ In the earlier MSS. he refers here to cannon perriers, but has deleted the passage, presumably because they were obsolete.

² 'Courtaux.'

³ *Sc.* Tightness.

fight. In these respects (I say) it is mine opinion of these drakes likewise, that they are not to be held in any great account for services at sea. So that I shall rather make choice of those kinds of great guns formerly known and used than of any of these new devised ones.

ADMIRAL. Since we have proceeded thus far in discourse about these fiery weapons that are most profitably portable in ships of war, it will be fit to consider of the rest of them, and of all such arms in general, as you hold most proper and useful in this nature.

CAPTAIN. As for such fiery weapons as are managed by single men, and to be used above the decks, I know none fitter than the ordinary musket, which is now in use ; it being not only of good execution, and of a good reach, but manageable enough by any ordinary man, whose station is to be upon the hatches. As for such men who are to be betwixt the decks, or in the round-house, or under the half decks or forecastle, there can no better nor more useful weapon be put into their hands, than the short carbines ; and especially being well breeched and full bored, and fitted with good firelocks. For these may safely be laid down in any place, upon any occasion, and as readily taken up. And when they are fitted with belts, even those men which are appointed to handle the sails may wear and use them, without neglect of their other services.

ADMIRAL. What other fiery weapons would you propound for the use of sea soldiers ?

CAPTAIN. Truly, there is need of none other, as long as men fight either in their own ship, or not board and board with the enemy. But then I confess it is requirable to use a fierce weapon that may be managed with one hand only ; and

such are the ordinary pistols, and especially the French horse-pistols : the which I should chiefly recommend at any boarding or close fights on ship board.

ADMIRAL. What other kinds of arms, for men's persons, either defensive or offensive, do you most approve of? Are not armours and head pieces of proof, very proper in sea services?

CAPTAIN. Surely no ; unless we were giants to bear them ; for though perhaps some one man, better underlaid than his fellows, may make a shift for a while to stand under these arms (the which I believe not one of ten can do, especially with sea-legs), yet if a musket shot hit him full upon his proof headpiece it will go very near to break his neck, though it pierce not his skull, and that's all one. If it strike him full on his breast, it will lay him on the ground where (if he break not his back with his fall) he must lie until two or three of his comrades take the pains to help him up. And therefore, for my part, I shall take no further care for one, than only to have a convenient skulled montero¹ on my head ; a good buff-jerkin on my back ; a half pike or battle axe in one hand ; a tried pistol in the other ; with a good short sword by my side ; to perform any[thing] requirable at any close fight or boarding.

ADMIRAL. Since we have spoken of the building of ships and the arming of them, let us hear somewhat touching the harbouring of them when they are thus completed. And the rather in regard that I have often considered with myself whether his Majesty's brave ships and potent fleets, which generally are wintered in one place at Chatham, might not with more providence

¹ A Spanish hunting cap with ear flaps.

be appointed unto several ports for their winter harbouring ?

CAPTAIN. I take it to be an axiom that ships are best harboured where they may lie safest, and soonest be ready for action abroad. And as for the King's royal navy, I do (from this ground) conceive (under correction) that it is not so securely and serviceably lodged, for a winter retreat, in any one place, as if repartited into two, or three or more. And my reasons are : First (in relation to the particular port, Chatham), that the difficulties are various in bringing them in or out, at times of need, by reason of the many sands and flats that lie in the way, and especially if the wind and weather be not very favourable. Secondly, in that they must have change and variety of winds to carry them to the land's end and so to sea ; which oftentimes missing, causeth many delays and much expense of precious time. Thirdly, if any foreign fleet should suddenly make any attempt or approaches upon us, out of any of the southern parts or western, the same winds that bring them upon our western or southern coasts bind in our ships at Chatham and Rochester. Fourthly, the King's fleet, being thus wholly made ready at Chatham, and so to be manned there, and the main presses of the best and greatest part of their men of force to be made out of the West Country, it occasioneth an extraordinary charge in bringing them so far a journey. And this charge is a second time augmented by their pay and expense in victuals before the ships can be carried to the West Country, from whence these men came. Fifthly, if some of his Majesty's ships were harboured in some of the ports of the western parts, as they are all at Chatham, it may be presumed that the pirates

durst not be so troublesome to those parts, nor so bold to come into our channels as now they are. Sixthly, it seemeth to be an improvidence to harbour all these ships in one place, in respect of the danger that may fall out by firing or any sudden surprises.

And these particulars being thoroughly weighed, and seeing there are so many safe and convenient harbours elsewhere to be found, as at Portsmouth, Plymouth, Falmouth, Milford Haven, and some others, I find no reason why some part of his Majesty's gallant fleet might not be stationed for the winters, in some of these ; rather than all of them (as the use hath been a long time) to be bestowed only at Rochester and Chatham. And if it shall be objected that the fleet, in respect of an enemy, cannot ride in any of these harbours so secured as at Chatham, by reason that it pierceth so far within the land, and is withal protected with some blockhouses, it may be answered that some of these harbours, as Portsmouth and Falmouth, are every way as safe as it ; and the most of the rest may be made so also in a short time, and that without any considerable charge.

ADMIRAL. I am well satisfied with what you have propounded touching all these particulars ; and because it is not yet time to part, we will make up this day's discourse with sea compliments. For our ships of war being once afloat and predy, it is to be expected that some good company will come aboard ; and it is fit to know how to entertain them with due and decent compliments and ceremonies ; the which, howsoever they may be various according to the customs of several nations, and more or less as the persons are, upon whom they are to be

bestowed, yet it is necessary that somewhat should be said, and especially of such as have been, and yet are, in common practice amongst ourselves.

CAPTAIN. In the first place then, we will begin with such ceremonies as are proper and appropriated for the entertainment, either of the Prince himself, or of his High Admiral, or any of his Generals.

Notice therefore being given that upon such a day, the Prince himself, or his High Admiral of the Kingdoms, or some General of a present fleet, intendeth to visit any of his chief ships before they go out to sea ; and that his pleasure is to be publicly, and with ceremony, received aboard. By the break of that day, the ship is in every part to be made neat and clean, and to be trimmed with all her ensigns and pendants ; the ship's barge is early in the morning to be sent from the ship to the shore, perfectly furnished with carpets, cushions, tilt, and the like ; the Coxswain with his whistle and best clothes being to attend in the stern, and the barge's gang in their liveries to row. And as soon as the Prince hath set his foot within the barge, the Standard Royal, or at the least the flag, is to be let fly and to be fixed in the head of the barge ; the which flag or standard is afterwards, at his coming aboard the ship, to be let fly, or heaved out in her main-top ; and upon the first ken of the barge from the shore, the ship's decks, tops, yards, and shrouds, are all to be thoroughly manned ; and the shrouds to be (as it were) hung with men. Upon the more near approach of the barge, the ship's noise of trumpets¹ are to sound ; and so to hold on until the barge come

¹ A set of four trumpets of different pitch.

within less than musket shot of the ship. And then the trumpets are to cease ; and all such as carry whistles are to whistle a welcome three several times ; and in every interim the ship's whole company are to hail the barge with a joint shout, after the custom of the sea. As soon as the whistles and shouts of salute and welcome are stilled, the trumpets are again to sound a welcome to the ship's side. And that side which is the port,¹ or entering side, is to be very well manned with the primest and best fashioned men of the ship's company ready on both sides of the ladder. The Captain of the ship is upon the deck to present himself, just as the Prince enters,² upon his knee ; and so to receive him into the ship, and from thence to conduct him into all the principal rooms and offices of the ship ; and at last into the great cabin, which is to be royally furnished, that there he may make his retirement and take his repast. And being ready for his meat, the trumpets are to sound at the carrying of it up, and the music to be at hand to play when he is at it ; all the guns of the ship being to be ready laden and primed, that so he may command what he pleaseth of that nature.

And thus having been entertained, and fully informed by the Captain in all his demands, he is in the like manner to be waited upon at his departure, as he was at his coming in. And being returned into his barge, after the trumpets have sounded a loath-to-depart,³ and that the barge is fallen off a fit and fair berth and distance from the ship, he is to have his farewell given

¹ In the earlier MSS. this is ' that side where the ladder is.'

² He has deleted the Admiral and General. In that case the Captain simply presented himself at the ship's side.

³ See *The Mariner's Mirror*, Vol. IX, p. 9.

him with so many guns as the ship is able to give ; provided that they be always of an odd number.

ADMIRAL. And why odd ?

CAPTAIN. The odd number in ways of salute and ceremony is so observable at sea, that whensoever guns be given otherwise it is taken for an expression that either the Captain, or Master, or Master Gunner is dead in the voyage.

And this ceremony of giving of guns is also in use whensoever any prime passenger, or the Captain of the ship, is to leave the ship and go to the shore.

ADMIRAL. Since you are thus fallen upon the ceremonial giving of guns, let us hear all the other particulars wherein guns are used in this kind.

CAPTAIN. Howsoever the fond and foul expense of powder in this nature (especially by the English, who herein are the vainest of all nations, as practising it in every ordinary feasting fit, and health drinking), is extremely condemnable, yet in some cases there may be some reasons the which (in mine opinion) not only tolerate, but require somewhat to be done in these ways ; and that not only for jollity and ceremony, but for use and benefit ; and these being those which I think you desire to be informed of, I shall call my memory to account for them.

And in the first is to be noted that if any ship or fleet, whether of our own or strangers ; of merchantmen or men-of-war, shall come up in any near distance, as within the reach of cannon shot with any of the King's ships, either at an anchor or under sail, it is their duty, and requirable at their hands, to pass under her lee, after the custom of the sea ; and, besides the lowering of her topsails withal, in passing by, to salute with

one, three, five, more or less, great guns, the which are also to be answered with a respectful correspondency. Now this I conceive necessary to be done not only in a regard of an acknowledgment of superiority to all ships belonging to his Majesty, and especially in all our own seas and channels ; but also, that by the expectation and looking after this ceremonial point, all treacherous designs, by a stealing upon them to the windwards and a sudden laying of them [aboard] either with some fire-ship, mine-ship or the like, may seasonably be discovered and avoided.

ADMIRAL. This certainly is very fit and necessary to be continued, and quits the cost of the powder, by way of providence.

CAPTAIN. I opine likewise that all ships whatsoever, though of the King's own, when they come to an anchor under the command of any of his castles, are to salute with some guns ; the which also are to be duly answered by the castle or fort ; that so a convenient and timely notice may be taken one of another, and all practices, suspicions, and mistakes prevented and avoided.

ADMIRAL. I find the same reason for the approbation of this compliment, that there was for the former.

CAPTAIN. It is a general custom also (as aforesaid) upon the death either of the Captain, Master, Master-Gunner, or any chief officer, that when the corpse is thrown overboard to its sea grave, to ring the knell and farewell with some guns ; the which (as aforesaid) are always to be of an even number.

ADMIRAL. And I conceive this custom may well be continued, though it be but of respect and distinction sake.

CAPTAIN. It is the use likewise (but this is

rather a piece of punishment, than any compliment) when any offender is ducked at the yard arm, to give fire to one or two great guns, at the very instant of his plunge under water.

ADMIRAL. You spake of this formerly, when you made mention of sea punishments ; and it is fit to be done, that it may serve as a warning piece for others to look out and beware.

CAPTAIN. It is a fashion also that when any ship belonging to a fleet of war hath been sent abroad, and chanced upon a prize ; at her return unto the fleet, having her prize following her under her lee, and her prize's colours disgracefully hung under her own, at her stern, to pass under the lee and stern of her Admiral ; and in a jollity and triumph to give some guns.

ADMIRAL. This waste of powder may well be borne withal ; for it brings somewhat with it to pay for the charge.

CAPTAIN. When ships likewise have been long in consort-ship abroad at sea, and to part several ways upon their several occasions, it is a use to take a leave and farewell one of another with giving of guns.

ADMIRAL. And it is a ceremony due to civility ; and to be borne with, if not overdone. Have you any more of these ?

CAPTAIN. Some other ways there are, wherein powder is spent, and indeed mis-spent, as in that of drinking of healths (as aforesaid) with the like idle and vain devices, so utterly unfit to be allowed, as I assure myself no wise man desires so much as to hear of them. Nor indeed do I mention any of these, as to be of any such real necessity, but that they may be very well forborne whensoever powder is scarce. For it is a true saying, that well-nigh all sorts of ceremonies have much

more of the superficial in them than of the substantial.

ADMIRAL. And yet we must hear somewhat more of this subject ; about the carrying out of flags and the like.

CAPTAIN. Flags (to speak properly), are only those which are borne out in the tops of ships ; and they serve as badges, and that as well for the distinguishing of nations as Commanders. And thus the Admiral of a Fleet or any Squadron is known to be so, by his ship's carrying of her flag in her main top ; the Vice-Admiral by having his in the fore top, and the Rear-Admiral his in the mizen top. And of what nation they are is known either by the crosses that they have in their flags, or the colours of the nation or country they are of. As St. George's Cross (as it is called) of old for England, and of late, the British flag ; St. Andrew's Cross for Scotland ; the French white cross for France ; and so for Denmark and the rest. And the Commonwealths and States (finding no room to distinguish themselves by crosses, being all taken up by the monarchs) do it either by the distinction of colours ; as the United Provinces by their blue and white, or by some device or portraiture that they carry in their flags, as the Venetians by their St. Mark. And thus far it is usual and useful even with fleets of merchantmen, who agree amongst themselves, for the Admiral ships in this kind. But in a royal fleet, consisting mainly of men-of-war, wheresoever the Prince is there in person, or his High Admiral in his room, there is then carried out in the main top of the ship, where they go in person, in lieu of ordinary flags, the Standard Royal, that is, the arms and escutcheon of the Kingdom of which they are.

ADMIRAL. Is this Standard Royal to be carried out only by the Prince or his High Admiral in their proper persons?

CAPTAIN. I once (and only once) saw it carried abroad by a mere General or Admiral of a fleet for a whole voyage together; but (as I take it) it was granted unto him rather as a favour than a right.¹

ADMIRAL. What are the respects and dues belonging unto these flags when they are seen thus flying abroad?

CAPTAIN. It is requirable that all ships and fleets, being inferiors either in respect of sovereignty, or place, or part, or any the like relations, do express an acknowledgment and submission by the taking in of their own flags, whensoever they meet with any others that are (justly) their superiors in any of these respects. As in the point of sovereignty within our Narrow Seas and English channels, which have long been claimed and made good to be a right, appertaining to the monarchs of England; if any fleet whatsoever shall, in any of these parts, meet with any Admiral serving in his Majesty's pay, and especially if it be any one of his Majesty's own ships, and giving notice of herself by having her flag flying, and if this fleet shall not submit to this submission and acknowledgment by taking in all their flags in their tops, it is to be accounted such an affront as that, upon terms of obstinacy, they are to be treated as enemies. In brief, no stranger of what condition soever ought to open his flag in any port of England, or in any place within any of his Majesty's dominions where there is any ship of his Majesty's own, or in his service, upon the penalty (at the least, and that upon submission)

¹ He refers to Wimbledon in the Cadiz expedition of 1625.

of losing her flag, and to pay for the expense in powder that shall be spent in compelling thereunto. And all English ships themselves, unless in his Majesty's service, incur the same penalty upon the same misdemeanour.

ADMIRAL. Howsoever just this be, yet I believe that it will no longer be observed anywhere, but when fear or force shall work it.

But what if two of the King's own fleets, or squadrons of his fleets, being abroad in his Majesty's service, under the command of two several, but equally absolute Admirals in their several charges, shall upon any occasion meet one with another at sea, or in a harbour; how is this ceremony of carrying out of their flags to be passed betwixt them?

CAPTAIN. Surely, being both Generals and Commanders-in-Chief under one and the same Prince's Commission, and without all relations to inferiority and superiority in regard of their commands, I find no cause nor ground but that both of them may and ought to keep abroad their flags; although otherwise there be found some personal inequalities betwixt them; as that the one be a lord, the other a gentleman.

And to this purpose I have heard it argued and concluded that the Admiral of the English Narrow Seas (who, for the most part, hath been no lord), being abroad in his employment and present charge, is to carry out his flag in all companies and fleets, unless the Standard of England be found flying; which is as much to say unless the Prince or the Admiral of England be there in their proper persons. Nay, so much respect (for the place sake) hath been always given to the very ship wherein the person of the Admiral of the Narrow Seas was shipped the year before,

that whensoever she was to go in from the service, she was allowed, though the Admiral did quit her in respect of his own person, to carry up her flag of admiralship, until she came over the chain at Chatham. And this she was to do, of what degree soever the man was, that was to supply the place. So that wheresoever this right hath been quitted, there was as well an expression of a gentle easiness in him that yielded it, as of a saucy pride in him that required it ; especially being so well versed in those ways, that he could not choose but know the disrespect of his demand, and being withal but a very ordinary man, and the other high enough above him.

ADMIRAL. But what if any of his Majesty's Admirals shall come under the command of any of his castles, are they then to carry out their flags, or not ?

CAPTAIN. It seems to me that there is no understanding equal man will deny but that, of due, they may carry out their flags, though they come to an anchor there. For the one, being his Majesty's fort at sea, as the other at land ; and both of them in action for his Majesty's service, and the Commanders being distinct in their commands, there can be no ground at all for any submission on either side. It is sufficient (as aforesaid) that they courteously salute one another with some guns, and that the comer-in begin first.

I know well that there have been some land commanders who have hotly argued to the contrary ; but until I find them less partial and more reasonable, they shall give me [leave] to dissent from them in this particular. For whereas they suppose that they speak much for themselves in saying that the land fort is settled and the sea

fort but a wanderer, they herein rather speak against themselves ; since in reason that fort is preferable which can do his Majesty's service in more places than one ; whereas the other can do nothing but in one place only.

ADMIRAL. But what other flags have you at sea, and what are their use and expressions ?

CAPTAIN. In strictness of terms, as I said before, those only which are carried out of the tops are to be called Flags ; the other are named either Colours, Ensigns, or Pendants.

ADMIRAL. Colours and Ensigns I take to be all one, but where are they to be placed, and wherefore serve they ?

CAPTAIN. They are placed in the sterns or poops of ships ; and few ships there are, whether men-of-war or merchantmen that are without them. And their service is, that when any strange ships meet one with another at sea, or find one another in any harbour or road, by the showing abroad these Ensigns or Colours, it is known one to another of what country they are, and to what place they belong.

ADMIRAL. Serve these Colours or Ensigns for no other employments but only this ?

CAPTAIN. Yes, to many other, by way of direction ; as shall be set down largely, in our next day's discourse.

ADMIRAL. What are the Pendants you mentioned even now, and wherefore serve they ?

CAPTAIN. A Pendant is a long piece [of silk] or some other stuff, cut out pointed-wise towards the end, in form of a streamer ; where they are slit into two parts. And the use of them is to distinguish the Squadrons of great fleets, by hanging them out in the tops of such ships as carry no flags. As for example, all such ships

as are of the Admiral's Squadron, are to hang them out in their main tops ; those of the Vice-Admiral's Squadron, in their fore tops ; and those of the Rear Admiral's, in their mizen tops ; and here also they are to be of several colours. But besides this use, in great ships, and especially such as belong to the King, they are often used by way of trim and bravery ; and are then hung out at every yard arm, and at the heads of the masts. And these only are their uses, and employments. And these also the only colours, pendants, and flags anciently carried abroad and used in ships of war. But of late there hath been invented an order that none of our English ships should be allowed to carry the King's flag, (that is, the English Cross quartered with the Scottish, and called the British flag or colours) save only such ships as are either of his Majesty's own or serve under his pay. And every such vessel, though but a catch¹ is permitted and enjoined to wear one of these in a small volume in her bolt-sprit's top. And these flags, thus worn, are termed jacks.

ADMIRAL. What other ceremonies are in use amongst you ?

CAPTAIN. Some few others there are, in the particular of the hailing of ships, and in the mannerly coming up with them, when they are found to be friends. Of which somewhat hath been said already, both in the beginning of this day's Dialogue, and in the next before it ; so that I shall not need further to express myself here, save only to touch upon them again with some few additions and enlargements wherein it is to be known that whensoever strange ships, unknown one to another, meet together at sea, it

¹ Ketch.

is the custom and compliment that the better ship (especially being a ship of war) do first call unto the other and demand whence she is, and whither she is bound ; in which action and salute, the common and ordinary words are : Ho, the ship ! and the other usually answers with another Ho ! in the same manner. And this is termed hailing ; and many times if, upon this hailing, either the Captains or the Masters, upon a second demand in these words who is there to friend, prove to be acquaintance or friends, then the hailing is renewed with whistles and trumpets, and the whole ship's company give a general shout on both sides. At which time also it is punctually observed that the inferior ship, either in respect of worth or employment, doth pass under the other's lee ; for if a small ship (especially being but a merchantman and no ship of war) do come up with a ship of war to the windwards (though both be of one and the same nation and party) it is accounted as unmannerly a trick as if a Constable of a parish should jostle for the wall with a Justice of the Peace dwelling in the same county, or a mere peasant to offer to keep the way from his landlord's eldest son and heir. But to say truth there is much more than mere ceremony in this kind of compliment, for many advantages may be lost, and dangers incurred, by a toleration of strange and unknown ships to come up to the windwards. And what these are shall be evidenced when we come to speak of the nature and art of sea-fights in the ensuing Dialogue. So that no true nor skilful Commander at sea will by any means endure it, if it be within his power to help it.

ADMIRAL. Have you any more sea-ceremonies in use, besides the fore-named ?

CAPTAIN. The only one unspoken of, that I can remember, is that of striking or lowering of the topsails ; and this is used when any inferior ship or fleet, (inferior either in respect of strength, employment or the part where they meet), being to come up and pass by within reach of the cannon, with another fleet more eminent in any of these respects than itself, that then all the Admirals of the inferior fleet do not only take in their flags, but that every particular ship belonging to that fleet, as they come up even with the Admiral of the other fleet, by way of acknowledgment, of respect, and submission, do strike all their topsails upon the bunt ; that is, do hale them down, at the least half-mast high. And this ceremony is also due to all forts of command ; also from all ships whatsoever, not being of his Majesty's own, nor in his particular and present service. And if any ship, (though of his own), be to pass by any of the King's palaces, wherein his Majesty is then in person, and so becomes the Court, she is to lower all her topsails, and withal to give some guns.

And thus we have done with all our ceremonies practised at sea.

DIALOGUE THE SIXTH

**Touching the Ordering of Fleets of War in sailing,
chases, boardings, battles.**

ADMIRAL. In our former discourses we have spoken of the election and quality of our sea commanders ; fitted our common men and mariners ; victualled and shipped them. We have also translated our sea-language into plain English, and Englished our words of art. And in our last day's work we have composed our ships of war, in respect of building form, and burthen ; and we have gunned and armed them ; with all due ceremonies. It is now time to bring them into action ; which I desire may be the business of this day.

And in the first place (that we may begin as at land, orderly with a march) let us confer about the best forms for great fleets to order themselves in, in their sailing, whereby they may the better, and with the more conveniency and comeliness be kept together, and so answer all occasions.

CAPTAIN. The ordinary and general way is to divide the fleet into three Squadrons : The Admiral's Squadron ; the Vice-Admiral's ; and the Rear-Admiral's ; each squadron being differenced by the placing of their flags in the admiral ships, and by their pendants in all the rest ; and in their sailing abroad are to keep themselves together, as near as possibly they can,

under their several admirals, unconfounded, and in this order : The Admiral with his squadron are to sail in the front or van ; that so he may lead the way to all the fleet in general, by the view of his flag in his main top, by day, and by his light or lanthorn in his poop in the night ; the Vice-Admiral and his squadron to sail in the battle, or middle guard of the fleet ; and the Rear-Admiral, and those ships of his squadron, to bring up the rear. This I say is the most received common fashion for the sailing of great fleets, at their passing out to sea. Only, in the Spanish fleets, which yearly pass into the West Indies, the Vice-Admiral brings up the rear ; but this is because for the most part those fleets have no Rear-Admiral at all.

ADMIRAL. And what think you of this old and common received order ?

CAPTAIN. I mislike it not ; yet withal affirm that in fleets consisting of any extraordinary number of ships, as of one hundred and upwards, the divisions into more squadrons will be useful and necessary ; and being ordered into five squadrons, with so many admirals, it must needs be very advantageous and serviceable, especially if two of these five squadrons, composed into the lesser ships and best sailers, shall be appointed as wings to the Van, Battle, and Rear of the rest of the fleet.

ADMIRAL. How and wherein serviceable and advantageous ?

CAPTAIN. First, in the receiving of all commands, and the publishing of all instructions ; which being sent from the Admiral General to the Admirals of the squadrons, may hereby (by their being more in number, and having the fewer ships in their squadrons) be the more easefully

dispersed and imparted unto every particular ship. And surely the shortness of intelligences and, by consequent, the lameness of executions through the defect of necessary conveyances of this nature, have occasioned in some actions that I have been in both ignorance and disorder.

Secondly, in that all the ships of every squadron may hereby, with the more certainty and less hazard of falling foul one upon another, come up with their several Admirals at all times, and upon all occasions: and so by speaking one with another, at least every day once (unless extraordinary ill weather hinder it), may receive all new advices and orders, upon all fresh and sudden occasions, with the less trouble and the more certainty.

Thirdly, in that every squadron of the fleet, in taking due care to keep themselves together, and to berth themselves at a fit distance one with another (as at the farthest within ken) may hereby spread the more sea in their sailing, and so the better discover every way about them, upon all ships and fleets that shall come in their way, and within their ken.

And fourthly, in that when any such fleets or ships are at any time discovered, they may (by this order and spreading of themselves) be the speedier chased; and the nimble and good sailers, being thus placed in the flanks, may be in the more readiness to prepare themselves for every chase, and the surer and sooner fetch them up, and so discover what they are.

ADMIRAL. I conceive that the difficulties must needs be very great for any fleet composed of many ships (whereof some are good of sail, some bad; some great ships, others small) to keep and hold company together unsevered, and especially

unconfounded in the squadrons, at sea in the least foul weather.

CAPTAIN. The difficulties are indeed many and great, yet may be much facilitated by due care and observation ; and therefore to be so much the more warily heeded ; and especially in regard it is a point of a main and most important consequence. To which purpose, besides the vulgar customs of carrying out of flags and lights by all the Admirals, several signals are necessarily to be particularized, and communicated to every particular ship of the fleet, in the general instructions, before the putting out to sea ; whereby it may be known, even in the dark of a night, when the Admiral General upon any occasion intendeth to cast about ; when he shorteneth sail ; when he meaneth to lie a-try ; and when a-hull.

Signals are likewise in the same manner to be imparted, both for day and night, to give notice when any part of the fleet is too far ahead ; how they may be warned to shorten sail to attend the coming up of the rest ; or when they are any of them too far astern, to cause them to make out more sail, that they may come up with the fleet, and not be over-stayed for.

Peculiar signals are also to be communicated to every ship of a fleet, that if any of them, by any occasion, should lose the sight and main body of the fleet, they might make themselves known to one another, whensoever they should come within ken again ; and so avoid all needless jealousies and loss of time by chasing one another, and friend chasing friend.

Signals are likewise to be specified, by the giving of which from any one ship of a fleet, upon the discovery of any strange ships or fleet,

all the rest of that side may presently take notice of it, and be ready to look out and stand upon a good guard.

It is necessary also, in all great and numerous fleets, that some signs be privately imparted to the commander-in-chief ¹ of every particular ship ; by which any stranger not of the fleet, nor acquainted with the signal, may upon suspicion be discovered. And this may be done by the shewing of some colours, the which upon view, is to be answered by the rest of her fellows. Or in the night time, by some peculiar word, appropriated for every day and night of the week, and so from week to week. The which, upon hailing, they are to give one to another, and to answer one another ; somewhat in the nature of the word used in land service.

And this is a piece of such consequence, and so necessary to be practised, that by the neglect thereof I have known when sundry strange ships have passed through the midst of a main fleet, even at noon day, without any discovery at all made upon them, or at the least until it was too late. And myself, with a single ship, in a very light night once passed through the Spanish Armada coming out of the West Indies, without so much as being once questioned or scarce looked after.

ADMIRAL. Since these signals are of such importance, it is fit to particularise them ; as where they may be best disposed and placed, and how distinguished.

CAPTAIN. Though this may easily fall within the compass of every ordinary invention, and that these signals are to be varied according to occasions, yet in regard it may save some men

¹ In the earlier MSS. this is 'captain.' Butler also uses 'chief commander,' see p. 295.

some labour, and may express the use of them more perspicuously, we will mainly aim at such of them as may most conduce to the propounded end.

And because I apprehend that the master-piece consisteth in the thorough distinguishing of the several signals, and in the ordering of them in such a fashion as that they may not be mistaken ; and in the placing of them so as they may be best discerned, we shall apply ourselves to these particulars. In the first place, therefore, when the Admiral resolveth upon such a day to make out to sea with his whole fleet, a fit signal to express as much to every particular ship may be (as usually it is) by ordering his topsails to lie loose upon the caps very early that morning ; and if it prove to be hazy and dark weather, so that the fleet, being great or lying scattered at an anchor, may perhaps not be able to perceive the signal, it will be necessary, two or three hours before he begin to break ground and stir his anchors, to cause fire to be given to a single piece of ordnance, that may make them all to look about them, and to take notice that somewhat is to be done.

Secondly, if, a fleet being at sea, occasions require the general convention of all the Captains upon a sudden together with the Masters, to come all aboard the Admiral ship, a fit signal to let them know it may be made by hanging out a yellow flag in the uppermost part of the Admiral's main shrouds : but if there be intended the coming aboard of the Council of War only, then may a blue flag be hung out to the same purpose in the same place ; for I conceive that this part is more proper for the shewing of these flags than is the mizen shrouds (though this be

the most received place for this purpose) in regard that it is more perceptible, and so better discovered.

Thirdly, if the General or Admiral shall find cause to cast about in the night (for if by day this needeth no signal), besides that light and lanthorn that every Admiral is to carry in the stern, the most evidencing signal that I can think of may be to put out another light in the main top. And if he intend to lie a-hull, to show two lights in the same part ; if a-try, three lights. The which lights are so to be carried until it be found that the whole fleet hath taken notice of it.

Fourthly, if any squadron of the fleet, by being too far ahead, shall be required to shorten sail, and to attend the coming up of the Admiral, a signal appropriated may be to heave or wave an ensign abroad in the Admiral's foretop, and to give fire to a great gun. And on the contrary, whensoever any of them keep too far astern, to wave or flourish out the same ensign in the mizen top.

Fifthly, if upon the discovery of any strange fleet or single ship, the Admiral find it fit to have any of the pinnaces and best sailers of his fleet to stand in with them, and to require them to come to speak with him, an apt signal may be to give fire to a piece of ordnance or two, out of his own chase ; and withal to shew abroad a flag in his bolt-sprit's top.

Sixthly, whensoever a fleet, being at sea, shall meet with a fleet of enemies, and after due advice it shall be found fit to enter into a present ; ¹ to give notice hereof the Admiral may take in his ordinary ensign from the poop of the ship and hang out another coloured all red in the room,

¹ *I.e.* to make ready.

which is termed the bloody Colours ; that thus the whole fleet may take notice of an intent to a fight, and so to dispose and order themselves to fall on upon the enemy in such form and fashion as they are beforehand to be instructed in.

And these are those most necessary causes which require signals to be expressed by the Admiral himself out of his own ship. It follows that we give some instances in some other particulars, of such signals as every particular ship of the fleet is to make ; both to give notice to the Admiral himself, and all the rest of the ships of the fleet in his company.

And they are these : If any ship of a fleet shall discover any strange fleets, or any squadron of strange ships, or any single ship, not seen by the rest of the fleet, it being necessary that not only the General but the whole armada should with all expedition receive advertisement thereof ; a convenient signal to this purpose may be, to shew abroad some fore-appointed flag in that part of the ship which pointeth most upon the discovered strangers ; and if it be a fleet that is so discovered, then to hang out two flags in the same manner ; and withal to give fire to a great gun or two, that so notice may generally be taken.

Likewise, whensoever a fleet coming out of the sea expecteth a landfall, the ship that first maketh land is to give present notice thereof to all the rest of the fleet. And this may best be done, if it be by day, by shewing her Colours abroad, though it be in the main top for a time ; inclining and bending them towards that part whence land is discovered ; and if this discovery happen in the night, then to shoot off two pieces of ordnance, and withal to shew a light abroad ; and instantly

to cast about and stand off, that the residue of the fleet may take notice and beware.

Also if any ship of a fleet shall find herself in danger of foundering in the sea, by the springing of a leak or any the like accident ; if this be by day, she may shoot off three pieces of ordnance, and withal cause a younker to go up into the top and shew a waft. And if this happen in the night, then to continue shooting ever and anon of a single great gun, and withal to shew a light ; that notice may be taken by the noise of the gun, and the ship found out by her light, and so relieved.

And because there may be many occasions whereby a fleet may be dispersed, and afterwards recover company ; and that it is fit that, upon the first ken one of another, they should be made known one to another, and so all prejudicial mistakings avoided ; an apt signal to this purpose may be by the putting out and taking in of some flag so many times one after another as shall formerly be agreed upon, or by the often striking of a topsail or the like : the which they are to answer one unto another accordingly. And the like is to be practised by all single men-of-war that are in any consortship, when they ply it to and again upon any enemy's coast in quest of purchase ; that so afar off they may know one another and not lose time, and perhaps a booty in the meantime, by chasing one another to no purpose.

Now to every one of these forementioned signals diligent heed must be had, with a yare looking out after them by every particular ship of the fleet, that thereupon they may fit and accommodate themselves, one to another's occasions in their sailings and courses, that so

they may be jointly prepared for all services and employments that shall offer themselves.

And howsoever it is true that the due and strict observation of all these particulars must needs cost and take up much time in point of the dispatch and haste of a voyage, yet will it make an ample amends, as well in regard of the uniting of a fleet, and recovery of it after separation, as of all other advantages that can any way be thought upon.

And as for the taking up of much time, it is to be known and considered that to a fleet, in the making of a voyage, there is always to be allowed well nigh double the time that there need be to a single ship, or two or three ships only ; who in regard of a great fleet, do (as it were) sail at pleasure.

ADMIRAL. These courses, no question, cannot but be very prevalent every way, and chiefly for the keeping of a great fleet in company and order ; and surely I cannot apprehend that any long or great dispersion or separation can fall out amongst them if these rules be diligently observed, unless by some much overgrown and long-lasting storm.

CAPTAIN. In cases of such violence and extraordinary fury there cannot, to say truth, be prescribed any course of prevention, nor is there any hope in such cases to keep a great fleet from danger and loss by a desperate separation. But the best providence is showed by procuring of a recollection of them from their dispersion. And, to work this, it is one main means by an imparting beforehand to every particular Captain of the fleet a note in writing, in which all the places of rendezvous are to be particularised, the which for secrecy sake is to be sealed up, with a

strict charge not to be opened save only upon this occasion of a desperate separation. To which places of rendezvous a repair is to be made by every ship upon the first opportunity of wind and weather. And these places of rendezvous are best chosen when they are appointed to be upon such or such a latitude, so many leagues distant from such a land, or such a headland, or such an island ; in such or such a sound, harbour, road or the like. In all which, care is to be had that (if possibly it may be) a refreshing of, at the least, wood and water be there to be had. And thus a recovery procured of the lost Admiral, and the dispersed fleet united.

ADMIRAL. Let us now proceed and come to speak of such courses as are to be taken upon the discovery of any ships or fleet that are suspected to be strangers ; that so we may know what farther is to be done.

CAPTAIN. It is neither sea-like nor safe that so much as any one strange ship, much less fleet, should be suffered to pass within ken of a fleet of war and royal navy, and not be called and caused to give an account of themselves. It is therefore to be ordered that upon the first sight of any such ship or fleet some pinnaces of advice, and ships of the best sail (of which every squadron is to be provided with some, and especially the squadrons belonging to the Van and Wings), be beforehand appointed and instructed (as to their peculiar charge), upon the first discovery of any such to stand with them, and at their coming up to hail them (if they be single ships), or the admiral (if it be a fleet), and to let him know that they are to take notice of the fleet in view, and (at the least) to send some from amongst them to make known who they all are ; and that in the meantime they

bring themselves on the backstays to attend an answer.

ADMIRAL. And if this shall be denied, what then ?

CAPTAIN. It (*ipso facto*) puts them into the account of an enemy ; so that those pinnaces which have spoken with them are to give instant notice hereof to their own fleet, by a continual shooting of some great guns amongst them, that so that squadron which lieth fairest for it may speedily make towards them and begin a chase, and so the rest in order.

ADMIRAL. Being thus come to a chase, let us hear of some rules for the better effecting of it.

CAPTAIN. Rules to this purpose must needs be various and different, according as the chased lieth from the chaser ; for if the chased ship (being set by the compass) shall be found to the windwards (and then it is of least hope), the chaser is to bring all her tacks aboard ; and so to shape her course that she may meet with her at the nearest angle. But if the chased be to the leewards, the chaser hath nothing else to do but to make out all her sails and to stand in with her ; and if she be the better sailer of the two, and hath sea-room sufficient, and daylight, she is sure enough to speak with her ; unless the chased ship, by bringing herself close by a wind, and the chaser proving herself the more leeward ship, be thus eaten out of the wind, and so lose her that way. But if the chased ship be found right ahead, the best sailer carries it.

Now in all these cases, when the chased ship is first seen upon the deck by the chaser, the words of our art and command are : Set her by the compass ; the which being done, the consequent words are to be given accordingly as the

chase bears from you ; as suppose it be due south-west, then we say : Put a good man to the helm ; let fall the foresail ; get the larboard tacks aboard ; out with all your sails ; hoise up your small sails, the mizen and mizen topsail. Which done, command all the ship's company to keep themselves quiet and to sit still, for there is scarce anything that so much hinders a ship in her speedy sailing as to have many people in her removing to and again.

But if you find that the chased, perceiving you to fetch upon her this way, brings herself about, then the words of command are to him that is at the helm : Port hard ; and to those at the sails : Let rise the maintack and fore tack ; brace up the larboard braces ; get to the starboard tacks, main tack, and fore tack ; cast off all the starboard braces ; steadily ; right your helm.

And if you find that the chase clings up close by the wind, the words of command then are : Keep the chase open under your lee. If she pays away more room, then the words are : Starboard hard ; veer out some of the main sheet and fore sheet ; cast off the larboard braces.

If the chase stands away before the wind, then the words are : Let rise the main tack and fore tack ; hale aft the main sheet. If the chase bring you to a stern chase, then the command is : Hale up the mainsail in the brails. And this is done, not only to see the better before one, but to better a ship in her way. For it is worth the noting that if a ship's foresail and fore-topsail be good sail, she maketh better way with them than if her mainsail were down ; for her mainsail would wholly becalm her foresail whensoever a ship goes before the wind ; and it is generally found that

ships steer best with their head sails. Now these words of command in case of a chase, I thought fit to recollect upon this occasion, by reason that they [are] but scattered in our fourth day's discourse amongst the multitude of our other words of art there summed and interpreted ; and therefore not so ready to be made use of.

ADMIRAL. But when a chase is fetched up, which are the most advantageous and safe ways of coming up with her ?

CAPTAIN. The best way to come up close with a chased ship (if it may be) is to cross her fore-foot ; that is, to come right thwart in her way. For hereby you shall both hinder her in her sailing from you, and avoid her bringing of you to a stern chase, as also frustrate the spoil which her great guns may do to you, save only those which lie in her chase ; and withal shall the more effectually bestow your own, as well those in your own chase, when you first come up with her, as your whole broadside and quarter pieces, as you are passing by thwart her hawse ; and so scour her decks from stem to stern.

ADMIRAL. And being thus fairly gotten up with your chase, and come within the reach of your cannon ; and finding by her working that she trusts most to her heels and still intends to run for it, what may be the best course to stop her ?

CAPTAIN. The gunners are to be ordered to make the most of their shots at her sails, yards, masts and tackling, according as their guns will bear ; the which being anything near, may to this purpose be laden with langrel shot, bar shot, case shot, to do the more execution.

ADMIRAL. All this being done, and the chase retarded, by the loss of a mast shot by the board ; the tearing of her sails from the yards ; the spoiling

of her tackling, or the like ; so that you are got up with her to your wish, and now find her resolved upon a resistance ; which is your best course to begin your fight with her ?

CAPTAIN. Before the falling upon an absolute fight, the chase (be she what she will) is to be hailed ; for unless she evidently and intently manifest herself to be an enemy, by the showing of her Colours in her stern, or flag in the main top, or by shooting at you, or the like ; or that (as aforesaid) it be apparently found that she works to get the wind of you ; or that being to the windwards of you and having been warned by a shot or two from your ship to come under your lee, she refused to do it, it is otherwise an indecorum to shoot at any ship, before she be hailed, both by trumpets and the voice.

ADMIRAL. But being thus hailed and found an enemy, and a fighting one ; what is next to be done ?

CAPTAIN. Your own ship being aforehand made predy, by the taking down of all wainscot cabins ; or at the least with stuffing them with beds, sea-gowns, or the like stuff, whereby to dead the enemy's shot, and defend your men from their splinters ; half butts and hogsheads of water being also made fast in several places upon the decks, with blankets, sheets, and the like soaked in the water to quench all accidental fires ; the hold of your ship being likewise well cleared by the ship's sides, that so the carpenters may the sooner and surer find the enemy's shot, and stop the leaks ; all the yards of all the masts, especially of those belonging to the fighting sails, being sufficiently slung ; all the ship's company duly quartered and disposed ; some of them to the Master for the management of the sails ;

some to assist the gunners in the traversing of the ordnance ; others to the corporal to ply their small shot ; some to fill powder in the powder room ; others to carry it from thence to the gunners in cartridges, and to the musketeers in bandoliers ; the carpenters, some of them being ready in the hold, with sheets of lead, plugs, and the like necessities for the stopping of such leaks as shall there be made by any great shot received from the enemy ; others of them betwixt the decks, for the like purpose ; the chirurgeons in the hold also, with their chests and instruments to receive and dress all the hurt men ; as likewise the Minister in the same place to comfort and exhort them, and especially such of them as are most dangerously wounded ; every man taking strict notice of his particular station and task, from whence he is not to budge without leave. All these particulars being duly fitted and ordered, and so every way ready for a fight, the next care and consideration is to keep to the windwards of the enemy. And this is indeed a point and piece of such importance that hereby you shall not only avoid the trouble and blinding that may befall you, by the smoke of your own ordnance and small shot, but also so annoy and hinder the sight of your enemy with both yours and his own, that he shall not be able to make any certain shot at yourself ; nor find a possibility of looking about him ; nor be able to discover, and so make use of, any disastrous accident that may fall out to your hurt or his advantage. Nay some there are that speak so superlatively of this advantage of keeping the weather gauge in any fight at sea, that they positively affirm that it is impossible to receive any great shot from an enemy to the leewards that can endanger the sinking of the

ship, for (say they) by letting fly only the sheets and thereby righting the ship to swim upon an even keel, which may be done on a sudden, upon the receiving of any such shot of danger, the hole or piercing of the shot is brought so far above the water that no peril can ensue by the taking into the ship of any considerable quantity of water through that hole, and though it should, yet may it easefully and speedily be stopped.

ADMIRAL. But what if there fall out a constraint to fight, with the disadvantage of the loss of the weather gauge?

CAPTAIN. In this extremity (for it is no less) all industry is to be used to shoot down the enemy's masts and yards, and to spoil her general rigging (as was formerly prescribed in the case of a chase), that so by some lucky shot the enemy's ship may be forced to fall to the leewards; and so the loss of the weather gauge recovered.

ADMIRAL. Before we proceed to the full point of a fight, and the management of it, it will be necessary to do as you did before in that of a chase; that is to say, to gather together the words of command proper for sea fights, which lie but scattered throughout your former discourses.

CAPTAIN. As for the words of command appropriated for the making prey of a ship, they are only these in brief: Boatswain put abroad the waist-cloths; clear all things betwixt the decks: Gunner, have all things in a readiness, as your cartridges and your shot, etc.; see the guns be all clear; observe to give fire when the word is given; provide half-pikes and javelins betwixt the decks; load the murderers and mortar pieces with case shot. And if it be perceived that the enemy ship goes about to take

in all her small sails, command your youngers to take in yours also. If the enemy shew any Colours, shew yours also. This done, hail the enemy with voice and trumpets, and edge in with him. And these are the words of command to be given upon the instant of a fight, but before it begins.

ADMIRAL. What else is to be done ; and where are the chief commanders to be stationed during the fight ?

CAPTAIN. The Captain's proper place (especially in the beginning of the fight, for upon occasion he may be anywhere) is to be upon the quarter deck or poop of the ship, where he is to wave amain to the enemy with his naked sword ; his Lieutenant is to be in the forecastle and there to command and give directions ; the Master upon the half deck to look to the management of the sails upon all occasions, and tackings of the ship about. The which being done, the gunners are to be commanded to loose all the tackles of their guns, and to knock open all the ports, and thrust out all their guns ; for generally the fight begins with the cannon.

ADMIRAL. How near are you to be to the enemy when you thus begin to him with the cannon ?

CAPTAIN. In a sea fight a broadside is uncertainly, and for the most part ineffectually, given, when it is beyond the distance of musket shot at point blank ; and the volleys of small shot as idly bestowed but when they are delivered within the distance of pistol shot, or carbine at the farthest ; and besides carry with them an expression of fear. And here, the words of command are : Give fire gunners ; when you find it fit to give a broadside, or some single great guns : and

if you find opportunity withal, to give a salvo with your musketeers (which is always best done when most men appear above the decks) then the words of command are : Give fire, musketeers.

ADMIRAL. Being within these distances, what are the forms of fight with these fiery weapons ?

CAPTAIN. In the first place, your chase guns are to be given ; and coming up somewhat nearer, your whole broadside in order, as your pieces will be brought to bear. This done, you are to run a good berth ahead or beyond your enemy's ship, if it may be, and then to edge up into the wind ; and to lay your foresail and main topsail (which are called the fighting sails) on the back-stays ; that so either your consort (if you have one) may have the opportunity to come up with the enemy and do as you have done ; or that the enemy's ship herself may shoot ahead of you, and help you to the better opportunity to charge upon her a second time.

ADMIRAL. What courses are to be taken in this your second charge ?

CAPTAIN. An especial care is to be had to keep your loof, to which end you are intently to observe all your enemy's motions ; as to tack your ship whensoever he tacks his, and the like. This done, you are again to edge in with him, and in your way, if you find any store of his men upon the decks, lying open unto you, you may again give a volley of small shot as before ; and presently upon it (being gotten up side by side with your enemy ship) you are to fire your bow pieces upon her, and then your full broadside ; and then letting your ship fall off with the wind, let fly your chase pieces, all of them, and so your weather broadside. The which being done, bring your ship about, that your stern pieces may be

given also. All which being performed, and your great guns thus employed, you are instantly to bring all your tacks close aboard again ; that so you may be sure to keep your wind.

ADMIRAL. Having thus fought aloof with your fiery weapons, what is to be done next ?

CAPTAIN. In the next place consideration is first of all to be had whether it be fit to board the enemy's ship or not ; and to this end notice is to be taken whether she be higher or lower of board than your own.

ADMIRAL. But how may this be known, being enemies and at sea ?

CAPTAIN. By standing upon the poop of your own ship and heedfully marking and eyeing the poop of your enemy's ship. For if you can see the horizon circle over the poop of that ship, you may certainly conclude that your ship's poop is higher of board than her's ; and so on the contrary. And in this manner you may find of what height a ship is, in any part of her, by removing yourself in your own ship, and observing the corresponding part in your enemy's, and comparing them together. And thus also as you find cause, you may resolve for a boarding or not boarding.

In the second place, touching the point of boarding, it is to be heedfully observed of what fashion and frame your enemy's ship is built and contrived ; for if you find her lower of board than your own, and withal an open ship, and not very much overtopping you with men, you may confidently board her. But if she be built with three decks, and flush fore and aft, and every way answerable to that description formerly set down in our fifth day's discourse concerning the best ships of war ; and that withal you perceive

or find cause to think that the enemy keeps his men in covert, and beats upon you only with his ordnance, of purpose to entice you to a boarding, that he may give you the greater blow as being well provided to beat you off ; in this case it is mere madness to attempt a boarding, for you shall but bring your men to the slaughter and find yourself beaten off ; and that without any great damage to your enemy.

ADMIRAL. If it be not found fit to board the enemy's ship, what is to be done then ?

CAPTAIN. Certainly the best of your fight then will be to ply her thoroughly with your cannon, and that in the manner formerly set down ; and withal to instruct your musketeers to play mainly and principally into her port-holes, and that at the instant when those guns are to be used, that so the gunners may be beaten off the use of them ; and in the meantime to give order that your own gunners make their shots at the enemy's ship's yards, masts, sails and tackling. For by this constant course you shall both beat her men from the traverse and use of their ordnance, and also disable her from tacking about to bring any fresh broadsides. So that in time she may in likelihood be forced, even by your very ordnance, either to yield or sink in the sea, and especially if your cannon be better than hers.

ADMIRAL. This seems to be a good order for a fight when no boarding is to be attempted. But what is to be done, when it is found fit to board ?

CAPTAIN. You are then to bear directly up with your enemy's ship, and to cause your gunners to beat open all your ports to the leewards, and to bring as many of your guns thither as you have ports for ; the which being done, you are

to instruct your Master to lay the enemy's ship aboard, loof for loof ; and withal to order your midshipmen to man your tops and yards, and to see them furnished with store of great stones, fire-pots, and brass bails¹ and the like ; that from thence they may throw them upon the enemy at the boarding. And causing all your small shot also to be in readiness, being gotten board and board, you are to charge lively on, on all sides, with all your shot great and small ; and to enter your men in the smoke, every division at their best advantage.

ADMIRAL. Which be those parts of a ship which you hold most advantageous to enter by ?

CAPTAIN. The best part, for the making use of your ordnance in a board, is to lay the enemy's ship aboard thwart her hawse ; for so doing, you may make use of the most of your great guns, and she only of those which she carries in her prow. But the safest and best place of boarding, in regard of entering your men, is either in the bow of your enemy's ship, or to bring your midship close up with her quarter, and so to enter your men by her shrouds ; and at the same time to instruct some of them (selected for that service), to cut down the enemy's yards, shrouds, and rigging with all possible haste and diligence. And thus also shall you best secure your own men from the enemy's cannon.

ADMIRAL. All this hath been ordered touching a fight between two single ships ; but what if you, for your part, have a consort with you and would use her in your assistance at a boarding ?

CAPTAIN. Appoint her to lay your own ship aboard on the contrary side from your enemy's

¹ ' Bayle ' ; a bucket or pail, but probably a mistake for ' ball ' ; presumably filled with some combustible material.

ship ; and so to enter her men over your ship ; or at the least to lay the enemy's ship aboard either thwart her hawse or stern, as you shall find most convenient and proper for your turn ; but in no wise to lay the enemy's ship on board, on her opposite side to you, or on the other side of her where you lie aboard.

ADMIRAL. Why not on that opposite side ?

CAPTAIN. Because, if your consort shall lay the enemy's ship on board on her larboard side, whilst you do the same on her starboard, and so have the enemy's ship betwixt you ; if both of you employ your great guns at one time upon any occasion (as you may have cause to do) you must of force endamage one another, as much as the enemy, by reason that your mutual shot will not only pierce the enemy's ship but, with her, pierce yourselves also.

ADMIRAL. When you have boarded your enemy's ship and entered your men, and she stands upon a close fight with you ; what courses are you then to take ?

CAPTAIN. Your men, being thoroughly entered, and the enemy beaten from aloft, and so the decks cleared ; the next care to be taken is for the prevention of all trains ; either to powder chests, which must be done by a speedy removal of them, wheresoever they shall be found ; or to any barrels of powder placed under the decks for the blowing of them up. And this must be done by a sudden forcing open of the scuttles and hatches, and the entering of your men between the decks. And if, at the instant as you are first about to enter, any trains of powder be in any part discovered, before any farther entrance those trains are first to be fired by you, to avoid the danger of them.

ADMIRAL. How may this be done ?

CAPTAIN. One way of doing of it, and a safe one, may be by the fitting of certain pots of earth, or glass, being each of them capable of two or three pounds of powder ; wherewith being filled, lighted matches are to be fastened unto them, and thus they are to be cast upon these trains ; that by the breaking of the pots or glasses the fired matches may fire the powder within the glasses, and that, the enemy's trains ; whereby not only the mischiefs of those trains is frustrated, but a way fitted for the more easy and secure entrance of your men, by the very smoke and blinding of the powder. And these kinds of pots or glasses are likewise very proper and useful, being thrown into any part of a ship, upon a boarding where the enemy shall be seen to stand thick together ; that thereby they may be scorched, blinded, and dispersed, and the decks and places cleared where you intend to board and enter your men.

And thus, the enemy's ship being boarded, and her men beaten from aloft to their close fights, and from thence forced by the breaking open of her hatches and scuttles, and your men in possession of the sails and helm, the ship is taken and the men at your mercy ; wherein, nevertheless, a soldier-like quarter is always to be given, and never to be bloody in cold blood, nor cruel at any time.

But note this by the way, that which way soever an enemy's ship be taken, though by a yielding of herself, upon a parley, you are nevertheless to be sure to keep your weather gauge of her, and to hold her under your lee until you be fully possessed of her. And whensoever you give quarter, it is to be done with this caution

and proviso, that she presently furl up all her sails ; and so lie until you have taken full possession of her, by sending your boat aboard (if she yield without fight) and causing her best men to come aboard your own ship ; and sending as many more of yours, to supply their rooms. Lest otherwise the jollity of your victory afford her an opportunity to free herself from your jurisdiction. And this hath befallen more than once.

ADMIRAL. We have all this while discoursed only about an offensive fight ; and demonstrated the ways how it is to be acted. Let us now say somewhat of a defensive.

CAPTAIN. Rules of this kind, and to this point, are to be fitted to occasions and varied accordingly. For it is ingeniously to be confessed that if any commander find himself engaged by an enemy notoriously overtopping him in shipping and men, that it is the wisest and honestest way of defence to clear himself from him as soon as he can ; either by taking the best advantage of out-sailing of him, or by stealing from him in the night, or the like. For, *Non Hercules contra duos*. And it is certain that there have been some commanders who have honoured themselves as much by a retreat, as any others by a fight.

ADMIRAL. And yet I have heard that some single ships, even of merchantmen, have made stout and long defensive fights with two or three pirate ships at once ; and have at last escaped and got off with safety and reputation.

CAPTAIN. I deny not but a well built, and well provided ship (as some of our merchant ships are) sufficiently and stoutly manned, may do much in a defensive way against an over-

powerful enemy, that are neither forced to the fight, nor have so good a quarrel. And indeed, rather than to do basely, or yield upon dishonourable terms, it is the part of honest men and true soldiers to fight it out to the last man. And it is also true that an enemy, though never so numerous, may be made to buy his conquest dearly when he dealeth with such defendants, well provided and well shipped: Witness that brave ship, the *Revenge* of Queen Elizabeth's, commanded by that brave and resolute Grenville.¹ Nevertheless, as it were a madness in such a case to seek out such an enemy (the which, I dare say no merchant man will ever do), so it were a folly, if not a frenzy, if anyone should not by all means endeavour to disengage himself from such an inequality; whensoever, or which way soever, it may cautiously and honourably be done. In which respect, Sir Richard Grenville was, no doubt, much to be blamed; in that he suffered the height of his spirit to transport him both beyond his discretion and charity.

ADMIRAL. But let us yet understand some ways and directions for a defensive fight, when any accident forceth upon it.

CAPTAIN. In the first place, a main care is to be taken for the preservation of your men; and this may be done by keeping of them in covert; and especially when you find that the enemy, with their small shot, are ready to play upon them. To which end also the lids and covers of your ports are carefully and suddenly to be let down, as often as any of your great guns do make their reverse within board upon their firing and discharge; and at every thrusting of them out, it is to be done with all expedition and

¹ 'Greenefeilde.'

caution, all such of your men as manage them being to be instructed to retire themselves from before the opening of the ports.

As for the preservation of your men from the spoil of the enemy's cannon, the best and surest course that I can apprehend, is by the fitting and strong stanchioning of your midship's part throughout, with two rows of stanchions made of elm planks, or the like wood, that will not splinter ; and these are to be of four or five inches in thickness ; and to be set four or five feet in distance, the one row from the other ; and the void place betwixt them is to be stuffed up with junks of cables, old ropes, sea-gowns, beds, or the like ; and so be made cannon proof. That so all such of your men as can be spared from a present employment in the managing of your ordnance, and trimming of your sails, may be ordered to withdraw themselves to that side of this barricade, which in a fight shall be most remote from the enemy. [And hereby safeguard themselves from the violence of their great shot in general, and especially from cross-bar and chain shot, which is the chief spoil of men] ; and withal be ready and fresh to oppose the enemy, whensoever any occasion shall require them, [either to beat off the enemy at his boarding ; or to enter the enemy's ship, if it be thought fit.]

And in this manner may a defensive fight be made and continued whilst the enemy fighteth aloof and boardeth not.

ADMIRAL. But what if he should board ?

CAPTAIN. If an enemy board you, and that your ship be contrived with three decks, and as formerly hath been prescribed, you shall make him repent it, by retiring your men under covert, and scouring your decks and midship with your great

guns, laden with case shot, lying under your half-deck and fore-castle, and well secured within your bulkheads ; as also by your small shot, playing through your loopholes upon every inch of your ship aloft. So that the enemy will be forced to give place, and have little lust¹ to give you a second charge, when he finds you so well fitted to receive him.

ADMIRAL. But what if your ship be open-built, as too many of our English ones are, and especially those which use to trade to Newcastle for coal, and are termed colliers, the which otherwise would prove very good ships of war ?

CAPTAIN. Truly, being in this condition, there can be no other way to beat off an enemy ship that boards you with an overtopping of men ; but only, when he hath put good store of his men upon your decks, to blow up your decks and the men with barrels of powder fired under them. Marry, then the mischief is that the enemy, finding you thus laid open, adventures a second time to board you ; and then there cannot be found a second means to repulse him.

ADMIRAL. Are there no courses to keep off an enemy's ship from boarding of you, when you lie thus open to her ?

CAPTAIN. Some other ways there are propounded, but in mine opinion not much to be relied upon. As one is, by bearing up from her, full afore the wind, just betwixt your two sheets ; and so keeping your stern directly towards her, whensoever she proffers a boarding, not suffering her at any time to come up with any part of your side or midship ; and this no question but you may do, all the while you have sea room, by a continual bearing up from her at all turns. So

¹ 'List.'

that if she will rest obstinate to board you, you shall force her to enter her men only over your stern, whereby they will be put to it to scale and scramble up by their own bolt-sprit, which will prove so difficult to perform that ten of your men may be sufficiently able to beat off five times as many of hers, by reason of the height and narrowness of the passage.

A second way for the avoiding of an enemy's ship from boarding of you (if it be where you may find ground), may be by a sudden letting fall of an anchor, and thereby causing your ship to come to a riding, at the instant when you find your enemy's ship ready to fall aboard you ; the which he not suspecting and therefore not prepared to do the like, it must of necessity follow that the tide or wind, or both (if they set together) will so carry his ship to the leewards of yours that he shall not be able to get to the windwards or recover the tide until the next turning of it. By which time your escape from him may be favoured, either by some change of wind ; the access of some friends ; the darkness of a night ; or some other accident.

A third course conducing hereunto may be by an unexpected raising of some thick smoke or smother within your own ship ; as if it were accidentally on fire, at the very instant when your enemy's ship is upon the point of laying yours aboard ; that so the enemy, apprehending your ship to be on fire, may be scared from coming near you lest he should burn his own ship with yours. And in the darkness of this smoke also, you may haply find some opportunity to wend off from him.

And these are the most probable ways tending to the prevention of being boarded by an over-

powerful enemy. For as for that device of the heaving out of the ends of yards or masts through the ports, and other parts of a ship, by them to thrust off an enemy's ship from boarding of you, I allow but poorly of it; for it can only be practised by the greater sort of ships, because, with the lesser and weaker, the weight and height of the stronger and taller must needs force out the opposite sides of them.

ADMIRAL. We have all this while discoursed about the ordering of fights between two single ships only; but there is one main point remaineth untouched, and that is, touching the best forms that a great fleet is to put itself into, when it is to combat with another every way equal unto it, of which it is necessary to say somewhat.

CAPTAIN. This is a particular, touching which neither the whole of this age nor that which is past can afford any help or precedent; for we have none but those at Lepanto, and this was for the generality with galleys, which kind of fight hath a vast difference from that of ships; or those fights rather than battles, which were between the French and the Spaniard at the Western Islands¹; or those between ourselves and that Spanish Armada in '88; or such as have been betwixt the Dutch Hollander and the Spaniard within the strait of Gibraltar.² And of these, two of them (as that between the Hollander and the Spaniard, and the other betwixt the French and the Spaniard) in respect of anything that we can hear of, are lost to us, especially in the point of the form of their fights, or marshalling of their battles; so that it is over-evident that these forms of fleets, when ordered to the battle, which we are now to speak of, have been little

¹ In 1582.

² In 1607.

known, or at the least little heeded, in our world of late days ; since of all those fights and expenses of powder which have passed betwixt our English merchants and the Portugals and the Hollanders and ourselves, and the Portugals and the Hollanders in the East Indies, there is not so much as a sentence or word to be found, either of the manner of fight, or form of battle practised by any of them.

And to look farther backwards for any precedent of this kind were no less to lose one's labour, since the critics of these times agree not so much as about the very names of the sea vessels used by the ancients, much less about their shape ; and much, much less concerning their manner of fights. And surely, if there be any agreement amongst them, it is in this, that there is little or no affinity at all betwixt their vessels and ours, either in respect of shape or manner of sailing ; for as for those vessels of theirs, which were mainly for portage, though they went with sails (as our ships do) yet are they said to be round and thence termed *Rondi*,¹ as well as *Onerarii*. As for those called *Longas*, *Actuarias*, *Triremes*, *Quadriremes*, and *Quinqueremes*, they seem by their names to be rather galleys than ships. And a mighty dispute there is, whether they were so named in regard of the number of rowers, or by reason of their orders, or banks of oars ; or whether these names, *Longas* and *Actuarias* were a sort of shipping by themselves, or the general name for the *Quadriremes* and *Quinqueremes*. So that, small hope there is to find anything here to instruct us in forms of fights at sea, since we cannot so much as be resolved in what manner they went to sea.

¹ ' *Tondi*.'

Nevertheless, it being so necessary to say somewhat of forms of this nature ; and that our marine discourses will otherwise be very defective and wanting in this particular, I shall not fear to speak that plainly, which for mine own part I should put in practice, if at any time I were to give advice or order, in the point of ordering a fleet for a sea battle.

I say then, that whensoever a fleet is to give or take a battle to or from another fleet every way equal unto itself, it will be necessary (whether the squadrons be three in number, as generally they are, or five, as was prescribed formerly for every great fleet) that every one of these squadrons do sub-divide itself into three equal divisions, leaving a reserve of certain selected ships, taken out of every division, to bring up the rears ; the which reserve may amount in number to the third part of every one of those divisions. And every one of these divisions is to observe a fit berth or distance one from another ; and in a fight to second one another, as cause shall require. And to avoid confusion and the falling foul one upon another, they are in the fight to charge and fall off by threes or fives, as they are in number more or less. The ships of reserve being always to be vigilant and ready to come up to the relief of all such ships as shall be any way engaged by the enemy ; and to put themselves into the room of such as may chance to be made unserviceable ; and this order and form to be constantly observed and made good, during the whole time of the fight and battle.

ADMIRAL. And I conceive that this order may well be observed and made good by a heedful attention that every particular ship is to have upon the working of their leading ships, and especially admirals.

CAPTAIN. And by this vigilancy also, if the fight should continue even within night, it may be maintained if every ship do but carefully heed the admiral of his particular squadron by the view of his light ; and especially his leading ship, that so when the admiral falls off, he may do likewise, and so the rest in order ; and all of them retire unto their several divisions, to repair and order anything that hath miscarried in the former fight, or to speak and advise with their chiefs ; and so to be ready to renew the fight and recharge the enemy according to instructions. To which end it is diligently to be observed by all the admirals of all the squadrons, that they so order and keep themselves in their several divisions that they may be seen and known by their whole squadron, as well by night as day ; that so directions may be given and taken from them by every particular ship.

ADMIRAL. We have thus ordered the ships of war for a battle, but what shall become of the munition ships, and the victuallers, wherewith every great fleet is to be furnished : and they, during a settled fight, to be well secured ?

CAPTAIN. These are to be ordered in the rear of all the rest of the fleet, and are not to engage themselves at all in the fight ; but there to attend such directions as shall be sent unto them.

ADMIRAL. Have you any other forms of fights, to be made use of in a sea battle ?

CAPTAIN. Some other there may be ; as for a small fleet, being to fight in an open sea, that it should be brought up to the battle in one only front ; with the admirals in the midst of them, and the chief admiral in the midst of these ; and on each side of him the strongest and best provided ships, who, keeping themselves in as con-

venient a berth as they shall be able, are to have an especial regard in the fight to all the weaker ships of the side, and to relieve and succour them upon all occasions. And withal, by being thus near the Admiral General, they may both guard him and aptly receive instructions from him, to be imparted to all the rest of the fleet. And for a numerous fleet the same order may be practised, provided that there be sea-room enough ; only the ablest ships are here so to be berthed that the agility of the smaller ships, and the strength of the greater, may be communicated to a mutual relief and advantage, and to answer all occasions either of charge or chase. To which end all those vessels that are in the windwardmost¹ part of the front are to be made up of the strongest and best ships, that so they may with the better opportunity relieve all such of the weaker ships, being to the leewards of them, as shall any way be oppressed by the enemy.

ADMIRAL. May there no use of fire-ships be made in any of these occasions ?

CAPTAIN. For mine own part, I have no great opinion of them. For first, they cannot be employed with any certainty but with a fore-wind, and a current or tide setting in, full upon the enemy. Secondly, these fire-ships, when they have both wind and tide, must nevertheless be wafted with a strong guard of boats close up with the enemy's fleet before they be fired, and forsaken by the men that bring them on ; for otherwise it is to be expected that the enemy with their boats will tow them off, to the one side or other of their fleet, and let them burn themselves unprofitably. Thirdly, though they should be thoroughly and luckily put on, yet may the

¹ ' Windermost.'

enemy avoid the danger by letting slip only, or cutting their cables in the hawses of such of their ships as lie in their drift, if they be at an anchor ; or if they be under sail, by wending from them at ease.

In these respects I hold the use of fire-ships to be uncertain, and not to be relied upon ; unless it be in some narrow of a river or channel, where the enemy cannot enlarge themselves any way, nor tow aside these fire-ships, by reason of the straitness of the place, and the passage of a current.

It is true that, by way of a stratagem, these kinds of fire-ships may perhaps serve to some purpose ; if being trimmed up to look like ships of war, and fitted with combustible matter, and so at the point of a fight be ordered in the highest of the front, as to give on with the forwardest ; that so having drawn on the enemy to a fight with them, and as it may fall out to a grappling, they may then set themselves on fire on a sudden (their men retiring in their boats) and by the furious burning of themselves hazard the spoil and firing of such ships of the enemy's as shall either be made fast unto them, or anything near. This, I say, may perchance be produced when these fire-ships are mistaken for men-of-war ; but when known for fire-ships, they carry but small hope of success with them for the reasons aforesaid.

ADMIRAL. And yet you know, that in that great business of '88 which you mentioned but even now, that mighty Spanish fleet was put into a great confusion by the use of these fire-ships on our part.

CAPTAIN. It is true ; but it was rather by their own false apprehension than any true cause ; for these fire-ships being thrust upon them (as

they were at an anchor), in the dark of a night ; instead of ordinary fire-ships as indeed they were, they were taken by the enemy to be of those sorts of powder-ships or mine-ships, which that famous engineer Frederick Innibell¹ had devised not long before, and some of them had felt to their cost in the river of Scheldt, at the siege of Antwerp ; whereupon, crying out : The fire of Antwerp, — that forest of ships and vast galleons, tumultuously cutting their cables in their hawses, ran away in a shameful confusion by our northern seas.

ADMIRAL. I perceive yet, that you believe wonders of these kinds of powder-ships, or mine-ships.

CAPTAIN. Indeed I must needs believe that ships stuffed with powder, bedded in strong vaults of brick or stones, as these kinds of ships are contrived, must needs produce terrible effects upon all things near them, when the powder is fired. But the skill and labour is, how to bring these vessels to the parts they are to work upon ; and how to prevent preventions from the enemy against the firing of them, when they are forsaken by those that employ them. And this I believe will be effected very rarely, and in but a few places and cases ; and when practised at sea, against a fleet, either under sail or at an anchor, not once in an Age. And besides, by the least touch or working of any storm, they cannot choose, by reason of their weight and unwieldiness, but suffer very dangerously : so that they are not in any manner of confidence to be relied upon, especially in the point of a sea battle betwixt two main fleets in the main sea ; nor indeed much to be trusted unto for the dispersion of a fleet, and forcing them from an anchor, being in any open

¹ Federigo Gianibelli.

place whatsoever ; though in this case, if any, there may be hope by their employment.

ADMIRAL. What courses may then be practised for the forcing of a fleet from an anchor, that either in the form of a half-moon, or any other, shall unite itself, and thus stand upon a guard.

CAPTAIN. Surely, it will be found the surest way, to attend the first stirring of a wind, with an agitation of the sea ; which must needs occasion some disorder amongst them and give advantages against them ; and hereby sundry opportunities offered to give on upon them in one part or other ; whereby they shall be forced either to alter their posture, or fall foul one upon another. And in the interim, and until you meet with this opportunity, you may, as occasion shall be offered, beat upon them with your cannon shot, whereof but few will fall unprofitably, their ships riding so closed together ; nor can they (for their parts) return any (or at least but few) of their great guns upon you, whilst they are thus at an anchor.

ADMIRAL. But is there no other use that a fleet may make by the putting itself into this form of a half-moon, but this of uniting itself at an anchor ?

CAPTAIN. No other that I can apprehend, unless when it finds itself to overtop an enemy in number of vessels it shall intend, by extending the horns and corners of the crescent, or half-moon, to environ and hem in the enemy on all sides ; and so to force him, for want of sea room, to a confusion and falling foul amongst themselves.

ADMIRAL. And what were the best preservative against this, to be practised by the smaller fleet ?

CAPTAIN. That those divisions which find themselves in a likelihood to be first environed and pressed upon this way, do with all expedition turn their stems upon their assailants; and so defend themselves with their faces, that is, their foreships to the enemy; and withal (if possibly they can) to put themselves into the forms either of a long square or a wedge; and so to give jointly on upon the inclosing enemy in that part, where they shall discern him at the weakest; and so pierce through and get sea-room. And this will be the better done if the tallest and strongest ships be ordered in the point of the wedge; who can better approach upon the enemy and support the shock. And withal, if need be, single out and entertain with a fight, and boarding too, such of the enemy's best ships as they shall find in their way; that so, whilst they are engaged in a fight with them, the residue of their weaker vessels may the more easefully disengage themselves, and get out to sea.

And this course also I shall propound as the best form for a fleet to put itself into; and the best way of fight that can be made, whensoever upon any other occasion a fleet is forced to make its way through an enemy's fleet. And the same directions may likewise stand good when any fleet, overtopped with number and multitude, shall be compelled for all that to a battle; especially if it find itself in any near proportion answerable to the enemy in the point of great ships, though otherwise much inferior in number of ships. For the enemy's best ships, being thus taken up and entertained, some one admiral or prime ship amongst them may happen to be so well beaten, taken, or sunk, as that, partly through the miss of direction to the rest, and partly by a general

discouragement, the whole face and fortune of the day may be altered.

ADMIRAL. We have hitherto insisted upon the most proper forms of sea-fights to be acted in an open ocean ; but what if occasion require a fleet to offend another, or defend itself, in a road or harbour ?

CAPTAIN. This is to be considered accordingly as the road or harbour is ; for if it be upon an enemy's coast, and in case of defence, the best course is (in mine opinion) if this fleet expect to be assaulted by an enemy's fleet coming out of the sea, in the first place to bring themselves to an anchor, where they may receive the least harm and damage from that shore. And if it fall out so that any part of them or all of them, by being forced to anchor, or to pass within reach of any fort of the enemy's upon the shore, find itself in danger, it may help itself by causing some of the worst and most unserviceable of their ships to run themselves on ground, right in the face of the enemy's ordnance, with all their sails standing ; that so with their hulls and sails they may both shadow the rest of the fleet from the enemy's view, and serve as a bulwark or rampart from their ordnance, in their passing by ; their men being to save themselves by retiring in their boats to some other ships of their party.

And the fleet being thus passed by these forts, every ship is to berth itself at as near a distance one unto another as conveniently they may ; the better to succour one another upon all occasions. And withal, order is to be given that such ships as are of most defence and force, either in respect of ordnance or any other way, be anchored upon all the avenues of the enemy's fleet ; there to undergo the first assault. And

some of the lightest ships and best sailers are continually to be employed abroad in the offing to give timely advice of the enemy's approach.

ADMIRAL. You here advise touching the order and form that a fleet is to observe, riding in a road or harbour belonging to an enemy, and an enemy's fleet expected from abroad ; and this must needs be with the most of hazard. Let us now advise what is to be done when a fleet, riding in a harbour that is to friend, doth nevertheless expect to be assaulted from an over-potent enemy coming out of the sea.

CAPTAIN. This fleet, by reason of the enemy's strength, being only to stand upon a defensive guard, the most provident and safe way (in mine opinion) is to lay the sterns of the ships as near unto the shore as possibly may be ; though it be so near as that (if the ground be oozy especially) they sew at low water ; for thereby the assaulting enemy, be he never so numerous, will be fearful to approach over-near unto them lest he also bring his ships aground by them. And this he will be the more fearful to do if he find those ships so closely moored one to another that in calm weather, or whensoever it bloweth not very fresh, supplies of men may pass from one ship to another, by planks in the nature of bridges ; and that some ordnance be fitly mounted upon the shore to favour them. But withal a main provision is to be made of long-boats, shallops, barges, and the like ; to be always ready by the ships' sides for the preventing (by towing aside) of all such fire-ships, and works of that nature, as the enemy may offer to thrust upon them.

ADMIRAL. Thus much for the point of defence ; what courses would you propound in case of offence, if you were to charge and make an

attempt upon a fleet of ships thus lodged and provided?

CAPTAIN. Whensoever this shall be done, upon a resolved enemy thus fitted, it must cost blows and blood; and the only ways that I can approve of are either by some choice ships of war, or by some of those fire-ships formerly mentioned?

ADMIRAL. What manner of ships of war would you make choice of, if you were to attempt that way; and how would you have them ordered?

CAPTAIN. I should make election of those that are most floaty, that they might come the nearer up with the enemy; but to be strong withal, and thoroughly provided with good ordnance, and store of them. A choice number of which I would have brought to an anchor as near to the enemy's ships as they could float at low water-mark; and there to be moored in such a fashion as that their broadsides may beat upon them. And so to lie and continue in action, with as many of their great guns as can possibly be brought to play upon them. By which constant course, being so near unto them, and having them so fair a mark, and so close together that but few of their shot will fall in vain, it is very probable that either they will be sunk where they ride, or forced to cut their cables, and be ruined by falling upon the shore. And in case that any of these assaulting ships do receive any great shot from the enemy that may endanger her sinking, she is to be ordered to retire unto the main body of her own fleet, and some other to be appointed to make good her station.

And the better to secure these assaulting ships from the enemy's shallows and other boats, which may desperately attempt to fire them, or cut their

cables, they are to have all their great guns on their sides most remote from the enemy (whilst their guns on their other sides are employed against the enemy) to be ready laden with murdering shot, to beat upon the approaches that way, if they shall be attempted that way. And their boats likewise to lie on the same sides ready manned; that so they may be ready to receive them every way.

Neither can these ships, thus moored, receive any damage by the enemy's cannon from the shore; because, lying anchored so close up with the enemy's ships, they will serve not only for a blind in their behalf, but as a bulwark, by lying directly between that cannon and them; which cannot be employed upon them without endangering their own ships more than they.

ADMIRAL. And how would you bring on the powder-ships to an execution upon them, if you would attempt that way.

CAPTAIN. These are to be brought on in the dark of a night. (The riding of the enemy's ships from you being to be set by the compass in the daytime, that it may be the surer done.) And they are to be conducted with as much silence as may be, by a good guard of boats, to such a distance from the enemy's ships as that their conductors and those that man them may find time and opportunity to retire and save themselves out of reach and spoil of the powder when it fireth; and yet so that these ships (by having all their sails abroad, and their rudders wedged, and setting in upon the enemy with a fore-wind, and if it may be with a current or tide also) may thus of themselves fall up amongst the thickest of the enemy's fleet, to a thorough execution.

And because it is to be expected that the enemy, upon their first discovery, and the forsaking of them by their men, will adventure to board them, and by a speedy searching out for the trains that lead to the chamber of the vault where the powder is lodged, seek to prevent their firing; it is a safe course to cause many false trains to be laid in sundry places of those fire-ships; the which the enemy finding upon his boarding, by removing them may be deluded upon a supposed prevention; and so give over from any farther search.

And as for the true trains, all such matches as are prepared for them are to be made fast to long twines or pack-threads; the other ends of which pack-threads are to be tied to the gears of two or three pistols, whose firelocks are to be ready bent; and the pistols being charged are to be so postured with their mouths, that being fired by the snatching up of the matches made fast to the pack-threads, tied by their other ends to their gears, they may shoot into the bed of powder laid within the vault and so fire it; or at the least, if these matches be not discovered at all by the enemy, they may of themselves give fire to the true trains; and so, by the one means or the other the wished effect of the blowing up the powder-ships, and the enemy by them, be accomplished.

ADMIRAL. Before we conclude these our sea discourses, there is one more particular of which I would have your judgment. And that is, whether a town or fort besieged by land, and having no other means to relieve itself in point of victual but by a friend to bring it by sea, may by the besieging party be so blocked up by a fleet of ships, as with any certainty to endanger the starving of those within the fort or town?

CAPTAIN. It may perchance be possible, but carrieth with it so much of hazard as not to be much relied upon.

First, by reason that force of winds may compel the besieging fleet to forsake their places of guard, by being forced from their anchor hold ; and the same wind opportunely fit the enemy to bring in supplies to their besieged.

Secondly, by the darkness of a night, and especially a winter one, by which an enemy's boats and smaller vessels may pass through any guard of ships whatsoever ; if not unseen, yet not seen until it be too late.

Thirdly, by reason that these supplying vessels thus passing through the enemy's guards, may so run themselves on ground under the protection and favour of the fort or town that they come to relieve as not by any means to be fetched off, or burnt, before they have shored their supplies, which is the only errand they came about.

And for the confirmation of this mine opinion, I will only produce two examples, the one ancient and foreign, the other modern and domestic ; the first being of a certain small island wherein were certain troops of Lacedæmonians besieged by a numerous and strong guard of galleys, by the Athenians ; who thought to starve the Lacedæmonians in this desolate island. But the Lacedæmonians, being loath to lose their good men, to get them clear, proclaimed that if any would adventure to carry in unto them any kind of victual they should have a great reward ; and that if any of the helots (who were slaves to the Lacedæmonians) would perform this service they should have their freedom. Hereupon, saith Thucydides, mine author (in lib. 4th, fo. 226), many there were (especially of the helots) who, in small boats, putting off from

all the neighbour parts, hazarded the adventure ; and taking the opportunity of a wind blowing so stiff that the Athenian galleys could not ride it out, in the interim they ran their own small vessels upon the shore of the island ; whither the enemy durst not pursue them, in respect they lay under the guard of their land force. And this they did many times and so often, as that they thoroughly victualled their friends, and frustrated the enemy's design.

The other example is one of our own ; that at the Isle of Rhe (wherein I was an actor) where our fleet consisting of two hundred sails of ships, one and other ; and many of them of the best in England, if not of the world ; being anchored close before the citadel at St. Martins, which was besieged on the shore by our land forces ; and by our fleet to be blocked up by sea, and kept from all relief of victuals out of the main of France, which indeed was not far off ; the French army lying at the same time before Rochelle ; our intent was by this our fleet so to cut off all succour from out of France, as that the besieged in the citadel should be forced either to famish or render the place.

But the French army being so near unto us, and their king in person with them, waited upon and counselled by that great instrument of his, the Cardinal of Richelieu ; to prevent our design, caused an amass of all the small boats and vessels in the adjacent parts, lodging them in several parts and creeks of the neighbour main, with a resolution to relieve their besieged at what rate soever.

True it is, that for a month or two, with the favour of summer weather, and short nights and light ones, we did prettily well prevent them.

But no sooner had we exchanged a piece of these for winter ones, but that the enemy would take the nick of a dark night, a fair wind, and a spring tide (all which to say truth did strangely concur in their favour) and pass through the midst of our great fleet to the victualling of their friends. In so much that, at one time, they ran themselves ashore, under the citadel, with five and thirty boats, in spite of us all ; so well provided as put us past all hope of starving them in the citadel. And at last also, in the same manner, landed so many both horse and foot upon us, in other parts of the island where we were, as made us glad to be gone, but sorry when we went.

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